BOSTON UNIVERSITY

SCHOOL OF EDUCATION

THE RELATIVE VALUE OF RECALL AND RECOGNITION TECHNIQUES

FOR MEASURING PRECISE KNOWLEDGE OF WORD MEANING--

NOUNS, VERBS, ADJECTIVES

Submitted by

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CHAPTER I

INTRODUCTION

<u>Purpose</u>.-- The purpose of this study is to construct crucial and incisive diagnostic vocabulary tests that adequately measure precise knowledge of word meanings for junior and senior high school in order to obtain information about

1. The relative value of recall and recognition techniques for testing word meanings.

2. The significance of different parts of speech for testing word knowledge.

To this end separate tests of 115 items each have been constructed for nouns, verbs, adjectives, per se. Items have been arranged or grouped according to synonym categories or fields and areas of meaning. Each test has been prepared in two forms with identical items--recall-completion and recognition-matching. The recall form is designed to measure an individual's facility in summoning words of synonym relationship for use in speaking and writing. The recognition form is designed to measure an individual's ability to identify and attach precise meaning to words.

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Fundamental considerations relative to vocabulary func-
tion.-- Any consideration of vocabulary knowledge and vocabu-
lary ability immediately becomes involved and complicated. In
the first place

> A word may be a symbol that can be put to use in
> thinking or communication or it may represent the total
> fullness of meaning which human experience may associate
> with it. Between these two extremes there are all de-
> grees of meaning for different individuals.[1]

Even the most basic descriptive terms are hardly defined
precisely enough to prevent confusion and misunderstanding
among the scholars on the subject. Knowledge of a word may be
interpreted as the ability to understand the word in recall or
recognition activities.

> The student may encounter the word while reading or
> listening, and, in order to understand the discussion,
> must recall from memory the experience to which the term
> refers. Alternatively, he may encounter an object or
> event and, in reacting, would find it useful to name the
> event with the proper concept so that he can use in his
> reaction whatever knowledge he has about that concept.[2]

Coincidentally, knowledge is a relative term.

> Since there are accretions to the meanings of most
> words throughout one's entire life . . .

> For practical purposes, knowledge must be defined
> in terms of specific reactions that one is able to make
> in reference to a word. A word is known by an individual
> when he can successfully react to it on the basis of the
> legitimate demands made upon him by his environment.

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[1]Kelley, Victor H. "Techniques for Testing Word Meaning
Knowledge" Elementary English Review 9:102-105; April 1932

[2]Cronback, Lee J. "An Analysis of Techniques for Diag-
nostic Vocabulary Testing" Journal of Educational Research
36:206-17; November 1942

The problem is to determine what the demands will be for each age.[1]

Sufficient research has been carried on in the field of

child psychology and child development to establish that

> . . . a child's mastery of language develops not only by adding "new" words but also, to a significant degree through the increased understanding of the con- notations of "old" words.

> In much of what is presented to the child, the problem is not so much one of complete mastery as op- posed to complete ignorance but rather one of varying degrees of understanding. As soon as the child's status in school gets him into the study of such matters as history and geography, for example, it becomes quite a difficult, if not impossible task, to map out a list of terms that can be mastered and "laid by" much as a child might lay by one row after another as he hoes the potato patch . . . Since a child cannot master everything at once, what actually happens is that he may have a more or less hazy notion of the meaning of a great many terms at a given time. This has been found to be the case in studies that have been made.

> A certain amount of vagueness and unfamiliarity is practically inevitable during the early stages of a child's first contact with certain terms. For a time many terms are likely to be more or less meaningful, rather than completely meaningful or meaningless. Mean- ings are likely to enlarge and to become more comprehen- sive as the child makes further contacts with the term in different contexts . . . a child's grasp of a given term may be in the nature of more or less understanding rather than complete mastery . . .[2]

Analyzing the definitions on vocabulary tests for some

3000 subjects ranging in age from five to twenty-seven years,

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[1]Dale, Edgar "Difficulties in Vocabulary Research" Educational Research Bulletin 10:119-122; March 4, 1941

[2]Jersild, Arthur T. Child Psychology New York: Prentice- Hall, Inc., 1940 pp. 130-33

Chambers[1] classified them under four headings: "(a) no answer, signifying absence of content; (b) wholly wrong answer; (c) vaguely right, i.e. having one or more correct features; (d) correct." Chambers explains more fully that

> For each of us there are many words occupying a circle of clear vision; there are others which are approaching this circle but are still rendered more or less dim by intervening fog. Others are so remote as to be distorted or mistaken for words which are familiar and still others are shut from view by the intervening clouds.

It is possible that the period or condition of vagueness and unfamiliarity in the acquisition of accurate concepts for words is highly significant both for teaching and testing. Crosscup[2] considers that

> . . . Further refinement of study in this area would contribute greatly to our knowledge of how to teach word meanings. It should be possible to classify, in some measure, various kinds of vagueness as illustrative of the steps by which the meaning of a word enters into a person's vocabulary in its final form. On the basis of observed responses of students to words on the vocabulary section of the Stanford-Binet test . . . certain things can be indicated:
>
> 1. Complete unfamiliarity of concept, but not of symbol.("I've heard it; I guess I don't know.")
> 2. General concrete area of application known. ("Philanthropy means richness, I think.")
> 3. General area of abstract classification known. ("I guess philanthropy means hating one's fellow men.")

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[1]Chambers, Will Grant "How Words Get Meaning" Pedagogical Seminary 9:30-50; March 1904

[2]Crosscup, Richard B. "A Survey and Analysis of Methods and Techniques for Fostering Growth of Meaning Vocabulary" Unpublished Master's Thesis Boston: Boston University School of Education, 1940 pp. 24-25

4. Accurate knowledge of concrete application. ("I guess philanthropy means endowing a library, or something.")
5. Accurate knowledge of abstract classification. ("Well, anthrop means man--anthropology; phila means love--Philadelphia, the city of brotherly love. Philanthropy must mean the love of man.")

In truth, the very complexity of vocabulary function itself seriously hampers and almost defies factorial analysis of the component abilities that would facilitate clarification of definitions. Present research has accomplished little toward isolating the various skills and in establishing their order of difficulty or logical relationships. From a questionnaire sent to reading experts throughout the country, Burkart[1] tabulated 214 important reading abilities which can be classified under "the following six headings: (1) observational abilities; (2) research abilities; (3) vocabulary abilities; (4) aesthetic abilities; (5) hygienic abilities; (6) oral abilities."

Burkart explains the segregation of vocabulary abilities thus

> In a sense, it is difficult to conceive of vocabulary skill apart from reading comprehension, for words, as conveyors of meaning and ideas are the means whereby comprehension is made possible. However, researches point to the conclusion that there is a distinct vocabulary function composed of numerous subsidiary skills.

After analyzing the data obtained from her questionnaire, Burkart concluded that

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[1]Burkart, Kathryn Harriet "An Analysis of Reading Abilities" Journal of Educational Research 38:430-38; February 1945

Two vocabulary abilities stand out as being very important. The first of these is the ability to acquire an increased vocabulary. Educators ranked this ability fifth. These results also show that the ability to attach clear meanings to words is held to be especially significant, ranking fourth among the 89 individual abilities.

Cronback[1] analyzed the "Various sorts of behavior that may be called for in understanding a word" and summarized them in terms of the following questions.

1. Can pupil define the word. This may and is often understood to indicate mastery of the term as a generalization.

2. Can he recognize that an illustration of a word, as commonly employed, is properly named by that word? That is, can he select, in ordinary situations, those to which the word is appropriate? We may refer to this level of behavior as application.

3. Can he recall the different meanings the word may have in different contexts? Can he distinguish which of these meanings is appropriate in a given text? For example--square table, 7 square feet, the square of 7. This aspect of word knowledge has been emphasized in writings on semantic problems of understanding which we shall call breadth of meaning.

4. Can he apply term correctly to all possible situations--even unfamiliar ones where its standard meaning would apply--and recognize its applicability to situations where it does not apply? This aspect, precision of meaning, is perhaps the most crucial for diagnostic testing especially when vocabulary is used in technical sense.

5. Does the student having the ability to use the term actually make use of the concept in thinking and discourse? This aspect we may call availability.

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[1] Op. cit.

To the psychologist,[1] the ability to define the meaning

of a word varies with intellectual maturation.

> . . . The very young child defines with increasing
> skill, passing through the following stages: (1) point-
> ing to an object (2) repeating the name of an object
> (3) giving the use of an object (4) describing the ob-
> ject in detail as to its form, size, color, or appearance
> (5) telling to what class the object belongs or its rela-
> tion to other classes of objects.

> Formulating a mature definition consists of showing
> the relation of a less inclusive group of objects (called
> species) to a more inclusive group of objects (called the
> genus). In the simplest type of definition the mere rela-
> tion of genus and species may be accepted as satisfactory
> . . . A good definition requires not merely the statement
> of a more inclusive group into which the word to be de-
> fined may be placed but it requires as well some dis-
> tinguishing characteristics (differentia) between the
> object to be defined and other members of genus in which
> it is placed.

To the students of semantics,[2] it "is probably more prac-

tical to consider a definition in terms of the common person who

makes himself understood generally."

> Definition is very much like the process of telling
> someone how to "get from one location to another." All
> one has to do, in order to explain a word to somebody is
> to find, as a starting point, a symbol whose referent you
> and he can both agree on and then use a "definition route"
> which he can follow.

> Every definition is unique. One takes a symbol which
> happens to become important in a discussion, and defines
> it by expanding it, by using other symbols to throw light
> on the way one is using it. The question of when to stop
> is always a new problem and always a practical one. If

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[1]Morgan, John J. B. Psychology New York: Farrar and
Rinehart, Inc., 1943

[2]Walpole, Hugh R. Semantics, The Nature and Meaning of
Words New York: W. W. Norton and Company, 1941 pp. 138-46

you stop too soon, you are in for trouble; if you go
on too long you become a bore.

Different ways to explain or expand a symbol:

1. This is it. Direct symbolization
2. It is similar to this. Similarity
3. Its name may be translated by this word. Translation
4. It is contained in this. Part for the whole
5. It contains this. Whole for the part
6. It is the opposite of this. Opposition by cut
7. It is at the opposite end of a scale from this.
   Opposition by scale
8. It resides in this place. Place: Where
9. It comes from this place. Place: Whence
10. It has this age. Age
11. It lived in this period. Period
12. It has this shape. Form
13. It has this size. Size
14. It has such and such a quality, characteristic or
    property to this extent. Degree
15. It is made of this material. Substance
16. It causes this emotional reaction in a human being.
    Causation: Emotive
17. Its material is in this condition. State
18. It has this effect on the human senses. Causation:
    Sensory
19. It has this effect on the human mind. Causation:
    Mental
20. It has this physical effect. Causation: Physical
21. It behaves in this way. Behavior
22. It is of this sex.
23. It serves this purpose. Use
24. He has this family connection with that person.
    Relation: Family
25. He has this legal connection with that person.
    Relation: Legal
26. Any other kind of connection simple or complex that
    you think of. Pragmatism.

Additional problems arise in the study of vocabulary

abilities because all language function is interlocked and

interrelated in the whole of human behavior to such an extent

that all language skills or abilities may prove to be only

diverse aspects of a single central process--general

intelligence. After noting how fully language abilities and comprehension processes intermesh and interact with intelligence, Watts[1] has declared that "language and thought develop together and inseparably." Consequently he considers it vital for educators to bear in mind that

> . . . the linguistic development of children can only be studied successfully when it is regarded as of a piece with mental development as a whole . . . In other words, linguistic ability is not merely the ability to memorize words and phrases with a view to being able to reproduce them more or less mechanically upon the receipt of a given cue; it is the ability to make intelligent use of words for the purpose of defining our thoughts and feelings as clearly as possible to ourselves, and of expressing them, when necessary, as clearly as possible to others, in order to share our experiences with them, to bring about their intellectual enlightenment or to influence their behavior. And this being so, no genuine enlargement of vocabulary can be secured except through an enlargement of the understanding, and equally no development of sensitivity in the use of language except through a general quickening, maturing, illuminating, and energizing of the mind in all its functions.

In 1918 Terman[2] found that the vocabulary section of the New Revised Stanford-Binet Tests of Intelligence correlated .90 with the total intelligence test score of the same test. During his experimental study of primary mental abilities, Thurstone[3] analyzed two separate verbal factors--"Word fluency

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[1]Watts, A. F. Language and Mental Development of Children Boston: D. C. Heath and Company, 1944 pp. 245

[2]Terman, L. M. and Merrill, Maud A. The Measurement of Intelligence Boston: Houghton Mifflin Company, 1937

[3]Thurstone, L. L. "Primary Mental Abilities" Psychometric Monograph, Number 1 Chicago: University of Chicago Press, 1938

in dealing with words and concern with ideas and meanings."
Accordingly he inferred that

> . . . vocabulary understanding involves the higher
> mental processes singly or in groups. Verbal classifi-
> cation may be a test of logical faculties for a young
> child, whereas for an educated adult it may be so very
> easy as to represent little more than perceptual speed.
> These relations have not been adequately recognized in
> recent studies of the changes in mental organization
> with age. That problem may also be further complicated
> by the possibility that the several mental abilities
> may have entirely different growth functions. . . The
> perceptual factor may mature much earlier than the
> verbal or inductive factors.

Finally, the study of vocabulary understanding is com-
plicated by the intrinsic relationships inherent in or evolv-
ing from the multiplicity of interlocking factors comprising
language function. These relationships are baffling even in
the very apparent language activities of speech, reading,
writing (spelling and composition). In the recondite, ab-
struse events of association, perception, discrimination,
comprehension, syntax, semantics, the relationships are so
confusing as to be almost confounding. Analysis has been de-
veloped little beyond the stage where scholars recognize the
significance of the fact that "a genetic sequence charac-
terizes all forms of linguistic development."[1] From his ex-
tensive study of the language and mental development of chil-
dren Watts gathered data for his book that

> . . . represents an attempt to grade linguistic
> difficulties in accordance with the principle that

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[1]Watts op. cit. p. 30

development is best regarded as taking place at ascending levels of ability, ranged in genetic sequence one above another. That there are levels of mental organization, hierarchical in character and complexity and successive in time, and representing qualitatively new powers which are reflected in the kind of language used for their expression is an idea that is beginning to find support and it is one which should prove most fruitful for education when fully worked out . . . The acceptance of this view must mean that progress in the mastery of language will not be a matter of simple instruction and willing response, but very largely one of natural development through the appearance of fresh insights.[1]

In a fuller treatment of the sequential development of language, Watts[2] explains that

. . . there is a marked preponderance of nouns in the infant's vocabulary . . . One reason for this preponderance of nouns must be that parents and nurses are more apt to draw the infant's attention at first to those features of the environment which are static or material, since these are more easily distinguished and more easily identified afterwards and named as the same things. It is true, of course, that parents and nurses do not speak in terms of nouns and nothing else. But while the infant is learning to speak, one thing at a time, and that some material thing is as much, as a rule, as he can attend to in the external world; so that when he hears the words, say, "Look, Johnnie! There's a bus going by," his attention is likely to be fixed on the concrete thing called bus rather than upon the more abstract idea of going by. We should add, perhaps, that it is not always clear that investigators have realized that no such word exists in English, as in Latin, as nouns in their own right. Bath and hammer, for example, may look like nouns to the unsophisticated student and may be classified as such, but the child may use them, singly, to mean bath me, or I want to hammer it, in which case one ought to classify them as verbs.

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[1]Op. cit. p. 244

[2]Op. cit. p. 37

Reasons might be given for believing that here the infant takes the same course as has been followed by the human race generally, who in their many languages have usually not developed their verbs until their nouns have become established. Certainly the infant does not begin to use the verb in its various forms before he has shown an understanding of his nouns . . . The quickness with which the infant grasps the possibility of expressing the idea of change, desired or resented, by the addition of a verb (or some part of it) to a noun is usually an indication of the quality of his intelligence. Not that he will know at this stage, of course, that such ideas have grammatical names, or that grammar itself exists. On the other hand, backward peoples and backward children are slow in taking this elementary step forward of finding and using a class of word to denote the process of change, so that they do not make anything like the same progress towards the mastery of their mother tongue.

. . . Roughly, it is true that a rich and varied environment favours the acquirement of nouns, that interesting activities favour that of verbs, and that the rate at which the other parts of speech are acquired, particularly adjectives and adverbs, the acquirement of which presupposes a power of abstraction, depends more upon the degree of native intelligence and the rate of its maturation than upon the quality of the environment or the number of vital interests.[1]

Summary.-- From the foregoing research, the following pertinent facts are developed as the governing principles for the construction of diagnostic vocabulary tests which are designed to be adequate measures of precise word meaning.

1. Use of vocabulary involves a number of skills subsidiary to reading, or a syndrome of abilities interrelated and interlocked with all the higher mental processes activated by thought itself and ranging from the simplest visual perception to the most meticulous discrimination of very concise expression.

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[1]Watts op. cit. p. 40

2. Knowledge of vocabulary is relative. With every person, comprehension of different words is a matter of levels of understanding ranging from complete ignorance to precise knowledge of the broadest concepts.

3. Knowledge of vocabulary can be expressed or revealed in a number of different ways depending on the practical problems of individual people.

4. All language development is characterized by a genetic sequence coincidental with and contingent upon mental maturity. Nouns, verbs, adjectives probably have developed in that order in the language of the race and do appear in that order in the speech and language of children.

CHAPTER II

REVIEW OF THE RESEARCH

Formal testing of vocabulary knowledge began to be con-
sidered around 1900. In 1907 Kirkpatrick[1] decided that an
accurate index of the size of one's understanding vocabulary
could be obtained from a list of one hundred words selected
at random from Webster's Academic Dictionary. After much
experimentation in random sampling, he developed his list by
taking a definite word at an exact location on every sixth
page of the dictionary. The subjects taking the test were
asked to mark the words they knew with a plus, unknown words
with a minus and doubtful words with a question mark. How-
ever, Kirkpatrick soon discontinued his research in vocabulary
testing because he was unable to measure and control the varia-
ble of intelligence.

Simultaneously, Babbit[2] was testing word knowledge of
college students by means of the Kirkpatrick method with an
unabridged dictionary as the source of his word lists.

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[1]Kirkpatrick, E. A. "A Vocabulary Test" Popular
Science Monthly 70:157-164; February 1907

[2]Babbit, E. H. "A Vocabulary Test" Popular Science
Monthly 70:378; April 1907

Within the same decade, Doran[1] was testing vocabulary ability by requiring written or oral definitions for words. His test words were selected in a definite order from a representative number of pages of Webster's High School Dictionary and Webster's International Dictionary.

During the same period, Whipple[2] tried to develop a test with Kirkpatrick's word list and testing techniques together with an additional list of one hundred words representative of subject areas.

Around 1910, Brown[3] experimented on testing the vocabulary of college freshmen. The students were asked to carry small cards around with them and to write down every word they used in conversation or writing. The purpose was to determine the number of words in the working vocabulary of the average student.

Bonser,[4] Burch and Turner studied the general word knowledge of elementary and high school students. They first used Kirkpatrick's list and testing procedure but later

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[1]Doran, E. W. "A Study of Vocabularies" Psychological Seminary 14:401-38; April 1907

[2]Whipple, G. M. "Vocabulary and Word Building Tests" Psychological Review 15:94-105; March 1908

[3]Brown, R. W. "The Size of the Working Vocabulary" Nation 93:11; July 6, 1911

[4]Bonser, F. G. and Burch, L. H. and Turner, M. R. "Vocabulary Tests as Measures of School Efficiency" School and Society 2:713-18; November 1915

developed a list of 150 words by taking the second word on every fourth page of Webster's Elementary School Dictionary and discarding every ninth word.

Starch[1] compiled a list of one hundred words by selecting the first word on every twenty-third page of Webster's New International Dictionary (1910). The students checked all known words and wrote definitions for both familiar and more difficult words which they had checked. The score was computed so that it revealed the "percentage of words understood on the list and the percentage of words understood in the complete dictionary."

In 1916, Thorndike[2] published his "Visual Vocabulary Tests." Words were arranged according to order of difficulty determined experimentally by tests on a large number of children.

With the publication of the Teacher's Word Book[3] in 1921 listing 10,000 English words with a measure of importance for each, Thorndike wrote

> ....data are available for making vocabulary tests much superior to those which we have had in the past. We

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[1]Starch, D. Educational Measurement New York: Macmillan Company, 1916

[2]Ibid.

[3]Thorndike, E. L. The Teacher's Word Book New York: Teachers College, Columbia University, 1921

can use the selection form which has been used by Holley, Gates, and others and so have absolutely objective and very rapid scoring. We can provide fifty examinations of 100 words each which will be of approximately equal difficulty, and can eventually be made equal in difficulty to any desired degree of precision. Within each such test of 100 words there can be an accurate gradation in respect to importance; and this gives a reasonable gradation with respect to difficulty.[1]

Acting upon his own advice, Thorndike prepared four forms of a series of vocabulary tests of 100 words each and administered them to over a thousand students in Grades IV to IX. After statistically establishing the reliability of his tests, his single conclusion was that

. . . To measure an individual precisely enough to compare him with other individuals or with his own past or future self, however, at least two, and preferably four forms (200 to 400 words respectively) should be used.[2]

After 1910 vocabulary was probably one of the most popular subjects for test construction in the whole field of measurement that was receiving impetus from the rapidly expanding scientific movement. All over the United States innumerable workers attacked vocabulary from various angles. Most of this research is worth noting more for what is demonstrated about the complexity of vocabulary ability or abilities than for the development of particular techniques or significant conclusions.

[1]Thorndike, E. L. "Word Knowledge in the Elementary School" Teachers College Record 22:334-70; October 1921

[2]Thorndike, E. L. and Symonds, Percival M. "Difficulty, Reliability, and Grade Achievements in a Test of English Vocabulary" Teachers College Record 24:438-45; November 1923

Working with college students, Gerlach[1] tested for under-
standing of 1000 words selected according to their order of
occurrence in Funk and Wagnalls' New Standard Dictionary. On
one test of 400 most difficult words, the students defined the
least familiar words. In another test of 600 words the stu-
dents chose the correct one of four alternative definitions.
Gerlach corrected the score for guessing on the multiple-choice
items, added the number correct on the recall test and multi-
plied the net score by 250 since his list was representative
of 250,000 words in the dictionary.

Brandenburg[2] prepared a test of 200 words selected at
equal intervals (one for every 140 words) from Webster's Aca-
demic Dictionary. Words were arranged as nearly as possible
in order of difficulty. The test was given to some 2000 stu-
dents in sixty-eight different classes from second to twelfth
grade in sixteen schools of six different school systems loca-
ted in Wisconsin, Iowa, Missouri and Colorado. Students were
required to write sentences for known words and put X on un-
known words. A summary of the significant results follows:

> The difference between boys and girls in the matter
> of vocabulary does not appear to be great . . . and not
> uniformily in favor of either.

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[1]Gerlach, F. M. "Vocabulary Studies" Studies in Educa-
tion and Psychology, Colorado College, No. 1, 1917

[2]Brandenburg, G. C. "Psychological Aspects of Language"
Journal of Educational Psychology 9:313-32; June 1918

Language Grade and Vocabulary Ability . . . (2) the high degree of correlation between the two abilities considered. The latter is of considerable significance to the teacher since it indicates that she could by a vocabulary test estimate the language ability of her pupils in an objective and impersonal manner, accurately and easily. . . . . When grades in oral expression are compared with vocabulary abilities we find about the same relationship as existed between language grades and vocabulary ability. The average tendency of grades in oral expression to fall within their proper or corresponding groups in vocabulary ability is seen to be slightly above 59%. It will be noted that no pupil who is excellent in vocabulary was poor in oral expression and that no pupil who was poor in vocabulary was graded excellent in oral expression.

While experimenting with vocabulary for his general intelligence test, Terman[1] prepared five tests of 180 words each selected by random sampling of the Laird and Lee Vest Pocket Dictionary of 18,000 words. Every hundredth word was taken beginning with the first word for the first list, the tenth word for the second list, the twentieth word for the third list and so on. All five tests were given at the rate of one a week to a class in Education of junior and senior Stanford University students. The task was to write an adequate definition for each word. Terman explains the results thus:

The average of the correlations of five separate lists with the average score in all is .906 . . . We can conclude, therefore, that a single list of 180 words is not greatly inferior in reliability to one of 900 words (that is, five of 180 words each).

Terman then prepared a vocabulary test of 180 words which he tried out on a large population of both adults and children.

[1]Terman, Lewis M. "The Vocabulary Test as a Measure of Intelligence" The Journal of Educational Psychology 9:452-66; October 1918

His conclusions are

1. For a miscellaneous group of 631 children the cor-
   relation between vocabulary and mental age is .91.

2. Children of a given mental age have approximately
   the same vocabulary regardless of chronological age.

3. Portuguese and Italian children from homes where a
   foreign language is spoken are for the first two or
   three years of school life considerably below the
   median for American children of the same mental age.
   The difference, however, almost totally disappears
   by the time the child has attained the mental age
   of 12 years.

4. The median vocabulary at each mental age is prac-
   tically the same for boys and girls.

5. Vocabulary growth is remarkably constant and regu-
   lar, the curve of medians for the successive mental
   ages being almost a straight line.

6. Correlation of vocabulary score (in 100-word lists)
   with number of words named in 3 minutes (60-word
   test) was .49.

In testing 640 children for vocabulary ability, a con-
stant tendency was noticeable for the group with the highest
I.Q.'s on the Stanford-Binet test to fall slightly below the
middle group after the mental age of 12 years. The tendency
was so marked for children with intelligence quotients above
140 that Terman[1] explains:

> . . . Such children do less well on the language
> tests of the scale than they do on tests which make
> heavier demands upon reasoning. Mr. Kohs has found
> that children of exceptionally high I.Q. by Stanford-
> Binet, consistently earn a still higher I.Q. by his
> Block Design Scale, a scale which is made up entirely
> of performance tests.
>
> It is also worthy of remark that although the
> children of a given M.A. who are below 86 I.Q. are

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[1]Ibid.

from one to several years older than those of the median
and bright groups, this advantage has practically no
effect on vocabulary score. The latter depends on mental
level and is but little influenced by C.A.

Neher[1] developed a vocabulary test of 100 words selected
in accordance with Terman's method from the Laird and Lee <u>Vest</u>
<u>Pocket</u> <u>Dictionary</u> (1914 edition). He administered it to 105
students (all grades) of a small high school in Indiana. Stu-
dents were required to define each word in a phrase or a sen-
tence as they chose. Pertinent facts about this study are:

> . . . those who do the most reading have the largest
> vocabulary, although there are exceptions, the general
> averages show this distinctly.

> . . . Age is no exact indicator of the vocabulary
> of pupils.

> . . . That school standing and the size of vocabulary
> is closely connected is shown . . . There is a continual
> increase from the freshman to the senior year (in size
> of vocabulary).

Schwesinger[2] has made such an extensive study of vocabu-
lary investigations previous to 1926 and that summary is a good
evaluation of the early research on vocabulary.

> (a) The chief purpose motivating the majority of
> the studies was to find out the extent of a person's
> vocabulary at various ages from infancy to maturity.
> Distinctions had to be made and allowed for, between
> the words used and the words which the subject actually
> knew. Whipple (41) introduced a fourfold response,
> D, E, F, and N, to take care of the discrepancies which

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[1]Neher, H. L. "Measuring the Vocabulary of High School
Pupils" <u>School</u> <u>and</u> <u>Society</u> 8:355-58; September 1918

[2]Schwesinger, Gladys Clotilde "The Social-Ethical Sig-
nificance of Vocabulary" <u>Contributions</u> <u>to</u> <u>Education</u>, No. 211
New York: Bureau of Publications, Teachers College, Columbia
University, 1926 pp. 4-10

were found to exist in achievement on words to be defined
as a dictionary would define them, words which the sub-
ject could explain, words which possessed vague familiari-
ty, and entirely new words. (b) Sex differences in size
of vocabulary seem to have captured the interest of many
of the investigators, even those interested in infants.
(c) The relation between size of vocabulary and general
ability was a factor under consideration as far back as
Kirkpatrick's time. He is found to have deplored his
inability to get reliable results because of the absence
of any instrument for measuring intellectual attainment.
(23) Other researches have considered (d) general vocabu-
lary standing and average school grades; (3) vocabulary
and major subjects; (f) vocabulary as a basis of school
classification, grading, college entrance, and the like;
(g) factors like the kind of previous grammar school
training, city or country residence, outside reading and
travel, which might be considered to have a formative
influence in determining size of vocabulary; (h) influ-
ence of present day school practice on linguistic develop-
ment. (i) Whipple (41) appears to have been the only one
to use the vocabulary tests to measure "not the efficiency
with which certain typical mental activities or mental
processes can function but rather the number of ideas
that an individual possesses. In other words," he adds,
"Their purpose is not to measure what the individual can
do, or how well he can do it, but what he knows about,
to take a census, as it were, of his stock of informa-
tion."
. . . .
      (a) Size of vocabulary.-- . . . . The estimates for
various pupil ages reached . . . are tabulated by Thorn-
dike. (37) He also evaluates their principles of method
and the sources and selections of their test lists, and
accounts for the wide discrepancies of results to (a)
the size of the dictionary used, (b) the method of
selecting words from the dictionary, and (c) the method
of providing for test response.

      (b) Sex differences in vocabulary.-- Results ob-
tained from the study of sex differences in vocabulary,
with the exception of Kirkpatrick's (23), seem to have
upset a popular notion that girls have more words at
their command than boys.
. . . .
      (c) Vocabulary and school grades.-- . . . . Kirk-
patrick (23) found that "of all freshmen, those ranking
high in scholarship, on an average, knew five per cent
more words than those ranking low in scholarship . . .

(d) Vocabulary and intelligence.-- Kirkpatrick (23) felt the possible significance of the vocabulary test as a measure of intellectual ability . . . McClatchy (27) . . . pointed out that inability to respond quickly to a stimulus word in an association test is, on the whole, not necessarily due to complexes or suppressed emotions, . . . but rather to a dearth of ideas, a limited vocabulary, and a lack of general intelligence.

. . . .

The above studies, however, it will be noted, deal only with a general vocabulary knowledge. None of them have attempted to study the possible significance of a special vocabulary, composed only of words which are used within that particular field of experience.

Therefore, Schwesinger,[1] in her own doctorate study, undertook to find out

. . . the possible significance of a special vocabulary to its related field of knowledge, and the relation of this special vocabulary to general vocabulary. The field of experience under investigation is the social, ethical, or moral knowledge of school children and the vocabulary needed to acquire and express it . . . The special vocabulary under consideration . . . comprises words commonly used in human relationships, words which have social significance, that is, words which are used to express the attitudes and actions of persons toward one another.

. . . .

. . . Such a specialized field would comprise words which are commonly used to describe situations involving human relations (as joke, company), terms used in deciding moral issues (illegal, villain), adjectives which denote modifications of character (bashful, recalcitrant), abstract nouns indicative of states of mind and character traits (uncertainty, snobbishness), verbs indicating behavior of human beings towards each other (scoffing, pitying).

After using a thousand words in five different tests to test some 1000 children in Grades V through IX of a small suburban town, Schwesinger[2] concluded that

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[1] Ibid.

[2] Ibid.

Social-ethical vocabulary was found to vary with:

1. Native ability factor.-- Social-ethical vocabulary varies directly with general intelligence (.88).

2. Knowledge factors.-- a) There is a progressive increase in growth of social-ethical vocabulary from grade to grade. b) There is a definite and positive correlation between social-ethical vocabulary and moral knowledge. The causal connection seems to be attributable more to intelligence than to training.

3. Home background factors . . .

4. Conduct factors.-- a) The median social-ethical vocabulary score for pupils rating "A" in conduct as judged by their teachers is higher than the median social-ethical vocabulary score of those rating less than "A." b) When the conduct scores of all the experimental subjects . . . are distributed on an honesty-cheating scale, and correlated with their social-ethical vocabulary scores, the correlation is insignificant.
c) Matching for grade tends to wipe out the social-ethical vocabulary differentiation between honest and dishonest.

5. Social-Ethical in Relation to General Vocabulary.— . . . the special social-ethical test of vocabulary is apparently an integral part of general vocabulary.

Analysis of Schwesinger's statistically constructed test instrument for measuring social-ethical word knowledge showed that:

a) The most valid words are not necessarily the most difficult.

b) There are no areas in the scale of difficulty or of validity where the correlation between symptomatic and difficulty values is higher than in any other area.

c) There are no single words in the social-ethical list which tends to show differentiating power in selecting honest from dishonest children.

Kennon[1] worked on specialized word knowledge in the field
of English. The purpose of her study was to present

> . . . two forms of a literary vocabulary test for
> teachers of English which will serve as one means of
> exploring word knowledge related specifically to the
> field of English literature, and to show the relation-
> ships existing between actual word knowledge revealed
> in the results from these tests, and certain measures
> of intelligence and achievement.

In building her tests Kennon explains that

> The two hundred words, which make up the two literary
> vocabulary tests for teachers of English . . . have been
> drawn largely from the special fields of English litera-
> ture, the concern of teachers of English both in study
> and in teaching . . . considerations which did enter into
> the choice of words . . . were one of the following, with
> the choices preferably made from sources commonly used in
> English classes in secondary schools.
>
> 1. Occurrence in a supposedly familiar or famous
>   passage of English prose or poetry.
> 2. Occurrence in prose or poetry of a certain his-
>   torical period included in the special field of
>   English literature.
> 3. Occurrence in specific passages of prose or
>   poetry . . . associated with certain modes of
>   religious and secular living.
> 4. Occurrence in the so-called technical vocabulary
>   of names of types of literature, figures of
>   speech, critical terms . . .
>
> The test form chosen . . . is the selection form used
> in the Thorndike Tests of Word Knowledge. Five options
> are given from which to choose the word which most nearly
> means the same as the test word at the beginning of each
> line. Thorndike, in commenting on the selection form of
> test, says that it "tends to represent a rather vague,
> inadequate, and loose knowledge, but it can be made to
> represent a very exacting standard, as when fine dis-
> tinctions are required or temptations to error are

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[1]Kennon, Laura Hall Vere Tests of Literary Vocabulary
for Teachers of English Contributions to Education No. 223
New York: Bureau of Publications, Teachers College, Columbia
University, 1926

introduced."[1] These suggestions were adopted, and the endeavour was made to provide options which present certain problems in association, spelling, and pronunciation. Specific ways in which "temptations to error" were introduced were by opposites, by definitions of words of similar sound or spelling, and by inclusions of "high-sounding," but essentially meaningless terms. Whenever it was possible the options were chosen from the same kinds of words . . . in order to make the choice more difficult. So far as it could be done the vocabulary of the options was kept on a general literary level.

After administering the tests to four hundred teachers of English that were students at Teachers College of Columbia University, Kennon summarized her findings.

> The amount of (word knowledge related to the field of English literature) possessed by teachers of English in terms of the tests L_1 and L_2 is in individual cases sometimes very small. The median score in terms of number of words correct per one hundred in L_1 is 49; in L_2, 48; and for the arithmetic mean of the two, L_{av}, 48 . . .

> The correlations between word knowledge specifically related to the field of English and measures of intelligence or achievement are consistently high enough to be significant and tend to substantiate the general notion that vocabulary correlates with intelligence and with school achievements.

> The relatively high correlations, .80 and .67, of the specific English vocabulary of the tests and the . . . semester mark in one course in English . . . seem to indicate that the two tests . . . are fairly good measures of knowledge of English subject matter . . .

> The correlations of word knowledge related specifically to the field of English and academic preparation in terms of degrees in English, years of experience spent in teaching English, and present teaching position are so consistently low as to be negligible.

> The tests are of adequate length and reliability for all ordinary purposes.

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[1]Thorndike, E. L. Vocabularies of School Pupils Contributions to Education New York Society for the Experimental Study of Education Vol. 1, p. 74

. . . .

The tests should be useful particularly in teachers' colleges or in special courses for teachers of English in colleges generally, as means of eliminating poorly prepared students from the ranks of prospective teachers.

Dolch[1] has made a psychological analysis of vocabulary ability and has summarized methods for testing knowledge of word meaning.

A. Unaided recall--individually or in lists

1. Checking for familiarity
2. Using in a sentence
3. Giving a synonym
4. Explaining the meaning
5. Defining

B. Aided recall

1. Recall aided by recognition
   a. Matching test
   b. Multiple-choice test
   c. Classification test
2. Recall aided by association
   a. Completion test
   b. Question test
3. Recall aided by recognition and association
   a. Multiple-choice completion test
   b. Multiple-choice substitution test
4. Recall aided by learning

Garrison[2] developed three different vocabulary tests for an experiment with sixty-six third grade pupils to determine the relationship between three types of skill with words. The tests were designed to "test a student's ability in choosing

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[1]Dolch, Edward W. Reading and Word Meanings Boston: Ginn and Company, 1927

[2]Garrison, K. C. "Relationship Between Three Different Vocabulary Abilities" Journal of Educational Research 21:43-45; January 1930

or writing words that rhymed with a set of key words, to test
ability to build as many words as possible from a given set
of letters, to test understanding of words used in sentences--
a multiple-choice exercise at the recognition level." His
conclusions were that

1. There is a positive relationship between the three
   vocabulary abilities tested, the highest being be-
   tween the rhyming and the vocabulary test scores.

2. The subjects showed an unusual amount of variability
   on the rhyming test with the least amount on the
   vocabulary test.

3. There is no reliable sex difference found for the
   three abilities.

At the Eastern Kentucky State Teachers College, Cuff[1]
experimented with 1110 subjects ranging from Grade II through
the first year of college. His test consisted of 100 words
selected from Webster's Shorter School Dictionary of 35,000
words. His own explanation of method of selection is

> . . . (1) we selected words from the source speci-
> fied which contains in addition to ordinary words, the
> most common words in technical and scientific terminolo-
> gy. (2) We arranged the test so that the relative number
> of the parts of speech in the test are approximately the
> same as the parts of speech in the dictionary; expressed
> in per cent, nouns 61%, adjectives 12%, adverbs 4%,
> verbs 22%, conjunction, pronoun, etc. (3) We listed as
> one of five words or phrases the first definitions given
> in the dictionary for a word.

Unfortunately, Cuff reveals no data regarding the results
of his testing program. Concerning the vocabulary testing

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[1]Cuff, Noel B. "Vocabulary Tests" Journal of Educational
Psychology 21:212-20; March 1930

program in general, however, he does point out that the discrepancies among the various investigators concerning the size of vocabulary for specific age or grade groups is due partly to the dictionary used and partly to the method of testing.

Serenius[1] studied the techniques of vocabulary testing and built 50 unaided recall tests with 125 different words selected by a special sampling from the New Webster's International Dictionary. After giving the tests to 203 eighth grade students, he was unable to achieve any significant results because the tests were not equivalent. However, from an analysis of his data he concluded

1. It is difficult to measure the extent of an eighth grade child's vocabulary.
2. Short vocabulary tests are not reliable.
3. A vocabulary test should have at least 500 words.

Kelley[2] evaluated word meaning tests which he described as

A multiple-choice test in which the correct synonym was mixed with four common incorrect responses; the alternates were secured from the tabulation of the responses upon a recall test in which the children gave words similar in meaning; a "same-opposite-neither" test in which the pupils were to mark whether the paired words meant the same, opposite, or neither by writing the letters S, O, or N upon the line between the pairs; a matching test in which the correct responses to the stimulus words were the same as used in the other tests;

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[1] Serenius, C. A. "An Analytical and Empirical Study of Certain Techniques Employed in Vocabulary Testing" Unpublished Doctor's Dissertation Iowa City: University of Iowa, 1931

[2] Kelley, Victor H. "An Experimental Study of Certain Techniques for Testing Word Meanings" Journal of Educational Research 27:277-82; December 1933

and a multiple-choice-sentence test in which the
alternate responses were the same as those used in
the first test and in which the stimulus word was
used in a sentence.

    After some preliminary experimentation, the
ability of the pupils to use the stimulus word in a
sentence to show that they knew its meaning was ac-
cepted as a criterion with which to establish the
validity of the various tests . . . The validity co-
efficient for each test was secured by correlating the
score on the criterion and recognition tests.

In interpreting his statistics, Kelley comments

    The multiple-choice test is more difficult than
the criterion measure. Evidently, picking out the
correct response from among five likely alternates
requires more word knowledge than the ability to use
the stimulus word in a sentence which shows that the
meaning of the word is known. It was intended that
this test should provide such a degree of difficulty
that a pupil would not be able to make the correct re-
sponse unless he clearly understood the relation between
the stimulus word and the correct response. The selec-
tion of the right answer also necessitates some knowledge
of the meaning of the incorrect alternates as well as
the stimulus word and the correct response. Instead of
two words entering into the task of answering the exer-
cises, six words had to be evaluated.

    It is rather significant that the multiple-choice
and matching tests appear to be equally valid measures
of word meaning knowledge, yet, if the matching test
were used to determine the words which have meaning to
children the results would indicate that they know more
words than if the multiple-choice test were used. This
point has an important bearing upon the results of studies
which have attempted to determine the number of words
which a child knows. The differences that have existed
in the findings of various authors are possibly the re-
sult of differences in the techniques used for measuring
word meaning knowledge.

Kelley concludes from his study that

1. The administration time of a test is a very important
   factor in determining validity. In this study the
   optimum testing time was established for each test
   by experimental procedures before any comparisons were
   made.

2. . . . .

3. The same-opposite-neither test and multiple-choice
   sentence test appear to be slightly lower in validity
   than the other tests.

4. The matching and multiple-choice tests appear to be
   the best techniques and are of approximately equal
   validity as instruments for measuring the word mean-
   ing knowledge of children. The average score on the
   matching test is approximately twenty percent greater
   than on the multiple-choice test.

5. Techniques for testing word meaning knowledge must be
   greatly improved before satisfactory estimates of
   general word meaning knowledge can be made.

Kelley[1] also experimented with two different methods for

constructing multiple response vocabulary tests--namely select-

ing the choices by reasoning and psychological analysis, and

selecting the choices from the confusions the students made

in a preliminary trial test. Since the critical ratio between

the validity coefficients of the two tests was only .74, his

conclusion was that validity was not increased by the extra

work involved in attempting to improve the instrument by a

preliminary trial.

In summarizing the research on vocabulary testing, Seeger[2]

states

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[1]Kelley, V. H. "Experiment with Multiple-Choice Vocabulary
Tests Constructed by Two Different Procedures" Journal of Ex-
perimental Education 5:248-250; December 1933

[2]Seeger, J. Conrad (chairman) Committee of the National
Conference on Research in English "Vocabulary Problems in the
Elementary School" (A Digest of Current Research) Seventh
Annual Research Bulletin Chicago: Scott, Foresman and Company,
1939

1. That it is not possible, with present instruments, to measure accurately the number of words an individual knows, much less possible to measure the extent, depth, or area of his knowledge of those words.

2. That the sources of the words in the test affect the results, as does the technique employed by the test.

3. That ability to define and ability to use words are not identical attributes.

4. That possibly the proportion of different parts of speech found in a test affects the validity of that test.

5. That in many standard tests there is a vocabulary problem in the direction of the test itself.

Seashore and Eckerson[1] developed a vocabulary test based upon the Funk and Wagnalls Dictionary because

(1) It is one of the few unabridged volumes having all words in a single alphabetical order, which facilitates the construction of representative short sample lists for the purpose of testing; and (2) it is large enough to give full opportunity for nearly all educated adults to test all of the words which they were likely to know, but does not include the very rare words which would be unknown except to the few specialists in languages who might prefer the larger and more authoritative Oxford Dictionary.

Their objectives were

(A) To construct a set of tests for estimating the total size of general English vocabularies in terms of dictionary entries as previously defined. This test includes:

(1) A multiple-response recognition test for all commoner basic words, the most important group.

(2) A supplementary use test for knowledge of rare basic words where only a few are likely to be

[1]Seashore, Robert T. and Eckerson, Lois D. "The Measurement of Individual Differences in General English Vocabularies" The Journal of Educational Psychology 31:14-38; January 1940

known.

    (3) Alternative use or recognition criteria for a small sample of derivative words which are of less importance.

(B) To determine the average size, range, variability, and norms for such measurements among college undergraduate students.

Seashore states no conclusions for this extensive investigation of vocabulary but he does report a single result.

On one hundred-twenty Northwestern freshmen and sophomores, Form 1 vocabulary scores (unlimited time) correlated r-.62 and r-.19 with the Iowa Reading Comprehension Test, Forms A and B respectively.

In an attempt to provide tentative norms on the absolute size of vocabulary for children from the first to twelfth grade, Smith[1] continued the research on the vocabulary test constructed by Seashore and Eckerson. In her opinion, the principal factors causing major variations in the estimated size of an individual's vocabulary are

First, the continual growth of the English language; second, the definition of unit of measurement, a word; third, the criteria of knowledge employed; fourth, and by far the most important, the basis for sampling, e.g. the size of the dictionary or the nature of the use situation from which the sampling for the test has been taken . . . Seashore and Eckerson's table shows clearly that the larger the dictionary used as a basis for sampling, the larger the estimated vocabulary will be.

For criteria of knowledge which may be applied to vocabulary, Smith used

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[1]Smith, Mary Katherine "Measurement of the Size of General English Vocabulary through the Elementary Grades and High School" _Genetic Psychology Monographs_ 24:311-345; November 1941

. . . (a) recognition of the commonest meaning of
a word, (b) definition in the subject's own words, (c)
use of the word in a sentence or citing an illustration.

Because she did work with a comparatively large school

population, Smith's results are fairly important.

. . . the highest first and second graders knew
more basic words than did the poorest student in every
other grade level up to and including the eleventh
grade. In the scores for total vocabulary the over-
lapping is as great.

There is a progressive growth in the average size
of vocabulary from grade to grade although the rate of
increase is not very regular.

. . . .

It was found that knowledge of words in the early
grades was greatly affected by the methodology of test-
ing and that improvement in vocabulary with age showed
significant qualitative as well as quantitative changes.
Since we were interested in determining the total number
of words which had any significant meaning for the child,
a broad set of criteria of knowledge was adopted. Thus
the child was first given an opportunity to define a
word in his own terms or to illustrate its proper use
in a sentence. If he was unable to meet these criteria
he was then given an opportunity to demonstrate his
ability to recognize the correct meaning on a four-
choice multiple response test.

A fairly steady growth of vocabulary will be illus-
trated by the following figures. For grade one, the
average number of basic words known was 16,900 with a
range from 5500 to 32,800. For grade twelve, the average
number of basic words known was 47,300 with a range from
28,200 to 73,200. For grade one the average number of
words in the total vocabulary (basic plus derivative
words) was 23,700, with a range from 6000 to 48,800.
For grade twelve, the average number of words in the
total vocabulary was 80,300, with a range from 36,700
to 136,500.

Working on the premise that "in reading one does not

define but merely places words into categories or patterns of

meaning," Wilking[1] utilized a category technique of testing in an attempt to construct and evaluate a diagnostic measure of reading vocabulary. He determined the categories into which a large number of words were to be placed by studying the frequency of usage of categories in the language as a whole as presented in Roget's Thesaurus,[2] a vocabulary list prepared by Durrell and Sullivan[3] from the reading and social studies books for the fourth grade, and the words in the first and twentieth thousand words in the Teacher's Word Book.[4]

Wilking stated the problems of his research as

1. How can reading vocabulary be measured more extensively in the space usually allotted to the testing of vocabulary in the average diagnostic reading test?

2. Is the new method of measuring vocabulary presented here a more valid measure of reading vocabulary than the methods used heretofore?

His conclusion was that the meaning category method of testing was a highly valid means of testing a large number of words in a given space.

Apparently astounded at the tremendous number of words

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[1]Wilking, S. V. "The Construction and Evaluation of a Measure of Reading Vocabulary" Unpublished Master's Thesis Boston: Boston University School of Education, 1940

[2]Mawson, C. O. S. Roget's International Thesaurus New York: Thomas Y. Crowell Company, 1925

[3]Durrell, D. D. and Sullivan, H. B. Minimum Essentials Word List

[4]Thorndike, E. L. The Teacher's Word Book of 20,000 Words New York: Bureau of Publications, Teachers College, Columbia University, 1930

he and Seashore[1] individually reckoned to be the vocabulary
capacity of students, Hartman[2] pursued further research on
size of vocabulary and declared

> . . . The principal difficulty . . . lies in the
> sampling technique employed. Obviously the total vocabu-
> lary estimate depends on the size of the dictionary em-
> ployed.
>
> Another serious limitation of the common procedure
> is that it makes little if any allowance for qualitative
> variations in the precision of the definitions . . .
> While it is true that a subject who gives the more com-
> plete definitions will also have a larger proportion
> right, it is probable that the actual gap between the
> superior and average individual is far greater than the
> results indicate.
>
> To test the hypothesis that the nature of the sampling
> was responsible for these gross discrepancies, four shorter
> lists from four different sources were compiled as follows
>
> (1) Seventy-five words from the current Funk and
> Wagnalls unabridged dictionary (containing approximately
> 450,000 words)
>
> (2) Fifty words from Murray's Oxford English Dic-
> tionary (containing roughly 414,000 words)
>
> (3) Twenty-five words from the Webster's Collegiate
> Dictionary (with 97,000 words)
>
> (4) Twenty-five words from the Winston Simplified
> Dictionary (100,000 words)
>
> None of the lists contained any word in common.
> They were given at one sitting to a group of one hundred
> college students largely juniors and seniors. The "iden-
> tification" technique was employed--each item was con-
> sidered correct if the proper synonym, use or illustration

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[1]Seashore, op. cit.

[2]Hartman, George W. "A Critique of the Common Method of
Estimating Vocabulary Size Together with Some Data on the Abso-
lute Word Knowledge of Educated Adults" The Journal of Educa-
tional Psychology 32: 351-58; May 1941

were given. Use of the conventional method of computing showed that the average number of this group had a mean vocabulary of 238,620 words according to List I; 216,920 with List II; 54,564 with List III; and 62,000 with List IV. It will be observed that the size of the vocabularies obtained parallels perfectly the dimensions of the dictionaries upon which they were founded. That it is the magnitude of the lexicon which is the deciding factor rather than the size of the sample word series is evident from a comparison of the figures for Lists I and II above . . . Of some interest and significance is the fact that in every case the estimated vocabularies are approximately the same per cent of the dictionary totals--thus the average subject "knows" 53 percent of dictionary I, 52 percent of dictionary II, 55 percent of dictionary III, and 62 percent of dictionary IV.

Hartman continues his psychological analysis of estimated size of vocabulary and reasons that

Perhaps dictionary content is not sufficiently homogeneous to be correctly represented by one hundred word entries. Seashore has suggested that the difficulty may lie in the definition of a word--possibly true of Funk and Wagnalls.

However, in view of the present evidence, Hartman is prone to believe

There is only one conclusion possible--the average undergraduate has an actual comprehension or recognition vocabulary in excess of two hundred thousand words.

Working with less than two hundred students from Northwestern and Baylor Universities, Lovell[1] investigated the relationship between knowledge of multiple meanings and knowledge of the commonest meaning for a word. His working criteria for differentiation in meaning were:

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[1]Lovell, George D. "Interrelation of Vocabulary Skills: Commonest Versus Multiple Meanings" The Journal of Educational Psychology 32:67-72; January 1941

(1) there is a change in part of speech, (2) there is a shift from concrete to figurative language or vice versa, (3) there is a specific technical usage, (4) there is a qualitative difference including a shift in connotation, a change in emphasis, a change from an action to a process or a person, or a change from one idea to an entirely different one.

Lovell constructed a vocabulary test based on a representative sampling of words from the Funk and Wagnalls Dictionary after the manner of Seashore and Eckerson. Results of the testing experiment were

1. The per cent of common basic words in Seashore and Eckerson[1] list having multiple meanings according to the criteria set up for this experiment was found to be forty-three.

2. The range of multiple meanings was (a) in the dictionary, from two to forty-one numbered meanings per word; and (b) in the multiple meanings test, from two to sixteen meanings per word.

3. The average number of multiple meanings known by students was 145 (S.D. 23) out of a possible 222 on the multiple-meaning test. There were three hundred eighty-five meanings in the dictionary for the same list of words according to the criteria of this test.

4. The average number of meanings known per word by college students was found to be 2.60 (the average number of meanings per word of those having multiple meanings in the dictionary was 5.28 and in the test 3.96).

Immediately in conclusion Lovell has written

In view (1) of the reliabilities of the two vocabulary tests, (2) the use of different types of criteria for the tests, (3) the presupposition of an elementary knowledge of parts of speech by the subjects, and (4) the agreement of the Multiple-Meaning Test and other verbal tests with the usual correlations between verbal abilities (around .50) apparently intensity, or richness of vocabulary (multiple meanings) is fairly closely related to extensity, or knowledge of single commonest meanings so that for general purposes we may estimate

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[1] Op. cit.

one from the other.

Butler[1] constructed a series of short vocabulary tests in
an attempt to evaluate techniques for teaching the ability to
gain word meanings from context in grades five and six. All
of these tests require the matching of a word with its defini-
tion. Without explaining why, she states that "This type (of
test) was selected because it seems to be the most satisfactory
way to test word meanings."

Sullivan[2] has employed a unique category technique of
matching words with their areas of applied and related meaning.
She built a

> Special Field Vocabulary Test of 900 words in six broad
> fields to: isolate, if possible, a hitherto unmeasured
> factor in relation to predicted success in academic
> achievement and teaching success, "interest tendency";
> to measure this factor, "interest tendency," objectively
> and to use the results in combination with scores at-
> tained on standard intelligence tests and a general
> English vocabulary test to determine the part played
> by the three factors in predicting academic attainment
> and the probability of success in teaching; and to de-
> termine the relative merits of the vocabulary test con-
> structed and those now employed.
>
> Based on a survey and questionnaire six broad di-
> visions were determined for inclusion in the final form
> of the instrument; the six divisions were: recreational
> fields, humanistic subjects, aesthetic fields, trades,
> scientific subjects, and practical arts.

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[1]Butler, Huldah A. "Finding Word Meanings from Context
in Grades Five and Six" Unpublished Master's Thesis Boston:
Boston University School of Education, 1943

[2]Sullivan, Helen B. "A New Means of Appraising the
Qualifications of Prospective Teachers" Unpublished Doctor's
Dissertation Cambridge: Harvard University Graduate School
of Education, 1944

Miss Sullivan found that her Special Field Vocabulary Test correlated very high with intelligence tests and with practice teaching ratings. She concludes that

> . . . it seems evident that a long form vocabulary test sampling many fields of human endeavor relates more closely to success in academic subjects and practice teaching than the more commonly used methods of prediction.

In the field of social science Koopman[1] considered that

> One way of measuring the quality of a student's thinking is to find out what meaning is suggested to him by a word or group of words which he is using in his study of the social sciences. These concepts are the outgrowth of experience and in using a given term the student relates past experience with a present situation. Through on-going experiences the meanings he attaches to the term are discarded, modified, or enriched. In an attempt to measure growth of this nature, forms A and B of a test, Social Science Concepts, have been constructed . . . to measure the ability of students (1) to use social science terms with discrimination and accuracy and (2) to associate with them a breadth and richness of meaning.

For additional details about her tests, Koopman explains

> Concepts of social, economic, and political life have been sampled. Selection was made on the basis of how essential freshman college students considered the terms as tools and materials in their thinking. The list thus made was then checked against Meltzer's[2] Social Concepts and Kelley and Krey's[3] "Terms in the Social Sciences."

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[1]Koopman, Margaret O. Test, Social Science Concepts, Form A Chicago: Progressive Education Association, 1940

[2]Meltzer, Hymen Children's Social Concepts New York: Teachers College, Columbia University, 1925 pp. 72-74

[3]Kelley, Truman L. and Krey, A. C. Tests and Measurements in the Social Sciences New York: C. Scribner's Sons, 1934 Appendix II

Each test consists of three sections. Seven social studies terms are used in each section and are followed by a number of statements each of which partly explains one of the terms or else is entirely irrelevant. There are between two and five matching statements for each term, ranging from fairly simple and well-known ideas which we associate with the term to more difficult and less familiar ideas. Each section contains six explanations that are irrelevant to all the terms. The student is asked to associate the terms with the correct meanings.

Probably the most extensive vocabulary research has been carried on in England for the past decade by Watts[1] who devised a series of some 25 tests to measure numerous phases of language development. He believes that

> . . . vocabulary research will have to take into account to an increasing extent the range and quality of the words which children use, and this will mean that the attempt must be made to classify the kinds of words acquired at different ages and an account given of what is implied by the results of such a classification.

Regarding the size of vocabulary, Watts concludes

> . . . fresh evidence has been adduced for the belief that we still underestimate the size of the average child's vocabulary for speech and writing. When he fails to express what he has in mind it is, as a rule, not so much a sign that he has fewer words at his command than those who succeed. The reason is a different one. He has not yet grown mentally to the stage of acquiring the general terms necessary for convincing us that he realizes the broader significance of what he has observed or read . . .

> We must never forget that language and thought develop together and inseparably. We may teach a child to pronounce "hard" words and after explaining their meanings in dictionary terms, we may provide ingenious exercises for their use and so secure what looks like a genuine understanding. But as long as he has no vital need for such words they will fail to find a place in

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[1] Op. cit.

his working vocabulary . . . Good teaching with older children will lead to a desire on their part to master the finer shades of difference between apparently synonymous words and phrases.

For demonstrating the different levels of meaning of a single word among students in the fourth, fifth, and sixth grades, Varney[1] constructed recognition type tests "in which modifications of matching, multiple-choice and true-false techniques were used." She selected 100 words from the Durrell-Sullivan Primary Reading vocabulary[2] in order to make certain of having common words well "within the experiences of children" as well as words that offered no reading difficulty for students in the intermediate grades. Clear and definite directions were written in a simple vocabulary also. Analyzing the results after testing 155 children, Varney concluded

> That matching and multiple-choice techniques are effective procedures for measuring the different levels of meaning of the same word.
> . . . .
> The matching technique showed the clearest item validity with multiple choice second.
>
> The matching technique also tests the most meanings for the space consumed and again multiple choice is second.
>
> In this study with these particular tests, the

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[1]Varney, Elinor C. "An Experiment to Evaluate Some Techniques for Measuring the Knowledge of Word Meanings in the Fourth, Fifth and Sixth Grades" Unpublished Master's Thesis Boston: Boston University School of Education, 1945

[2]Durrell, D. D. Improvement of Basic Reading Abilities New York: World Book Company, 1940 Appendix pp. 345-54

writer found that the matching technique was easiest to score, along this line. All of these techniques could be so arranged on the paper as to score very easily.

By counting the number of responses the pupils had to consider before making a choice, the writer concluded that, although the true-false technique had the lowest item validity it also had the lowest chance factor, with multiple-choice second, and matching third. Here again it is interesting to note that although matching has the highest chance factor that matching, type II, had the clearest item validity.

On the basis of the results of this study, the writer concludes that the elementary schools should do much more classroom work on common words with multiple meanings.

Form and type of objective test for measuring vocabulary.—

Insufficient research has been done regarding the various forms and types of objective tests to provide conclusive evidence for the selection of any one type as a means to measure vocabulary. In fact very contradictory evidence on the same type of test may be presented by two equally conscientious research workers.

Experimenting with recall and recognition types of vocabulary tests, Stalnaker obtained correlations from .913 to .931 between recognition as tested by multiple responses and recall by completion vocabulary tests. Hence, he writes in conclusion

. . . As far as type of vocabulary material is concerned the happy guessers on the recognition tests were also the happy recallers on the completion type tests.

[1]Stalnaker, J. M. "Recognition and Recall on a Vocabulary Test" Pedagogical Seminary 46:463-64; June 1935

On the other hand, in history subject matter tests for eighth grade pupils, Anderson[1] found that

> 1. Recall and recognition are about equally reliable.

> 2. Recognition is markedly easier.

> 3. Recall and recognition are not equally valid.

> The replies written by pupils who answered a given recognition item correctly but failed on the corresponding recall question indicates that in many cases, the pupils possessed inadequate or positively erroneous information with respect to the question.

> For diagnostic testing, where the discovery of the degree of insight to which the pupil has attained is important, it is to be recommended that teachers make frequent use of the recall form.

In education classes with college students, Andrews and Bird[2] conducted extensive experiments under well-controlled condition with recall and recognition types of objective test. Their experience indicates that recall is more variable as well as difficult but

> . . . recall items more consistently discriminated between superior and inferior students in terms of a given test than did recognition items.

Durrell[3] also believes that unaided recall, either written

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[1]Anderson, Howard R. "A Necessary Precaution in Diagnostic Testing" School Review 47:515-26; September 1939

[2]Andrews, Dorothy M. and Bird, Charles "A Comparison of Two New-Type Questions: Recall and Recognition" Journal of Educational Psychology 29:175-93; March 1938

[3]Courtney, Douglas and Bucknam, Margaret E. and Durrell, Donald "Multiple-Choice Recall Versus Oral and Written Recall" Journal of Educational Research 36:458-61; February 1946

or oral, has relative value of particular importance for testing understanding of verbal subjects. After his analysis of research data on ability to recall for reading comprehension, he states

This study confirms the findings that multiple-choice recall is considerably easier than unaided recall, either written or oral. The correlation between oral and written recall was .68, between written recall and multiple-choice recall .64, and between oral recall and multiple-choice recall .76. This analysis of individual scores showed wide individual variations in fluency of oral and written recall. Some pupils could express themselves much more freely in writing than in speaking. Others were low in both types of unaided recall but superior in multiple-choice recall.

These findings emphasize the need for measuring fluency of oral and written recall in analyzing the reading ability of pupils. They also show a possible reason for pupil failure in verbal subjects even though the reading test score indicates high reading comprehension.

Sims[1] investigated the reliability and validity of four types of vocabulary test--identification (defining word meanings), multiple response, matching, and checking known words in a list. Since the matching test showed the highest correlation with the other three types, he considered that there was some evidence the matching test gave the "most satisfactory group measure of vocabulary."

In the United States, Cronback[2] has studied the whole

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[1] Sims, Verner Martin "The Reliability and Validity of Four Types of Vocabulary Tests Journal of Educational Research 20:91-96; September 1929

[2] Cronback, Lee J. "Measuring Knowledge of Precise Word Meaning" Journal of Educational Research 36:528-534; March 1943

problem of testing quite extensively. He strongly advocates

the development of diagnostic vocabulary tests in order that

teachers may determine just how well the pupils understand

each term.

> . . . More careful analysis of the problem of word
> knowledge has suggested that a student may know a word
> more or less well, and that testing should determine
> the degree to which his understanding is complete rather
> than to say that he "knows" or "does not know" the word.
> In other words, it is important to determine how precise
> a concept he has acquired.

> Many tests require the pupil to respond with defini-
> tions or synonyms--that is, other words--instead of de-
> termining whether each word has meaning for him in life
> situations where he must use it. The pupil may know a
> definition verbally, without having the ability to apply
> it properly. He may associate a word with some situa-
> tions, but lack a broad enough generalization of its
> meaning to recognize other situations to which it ap-
> plies; contrariwise, the pupil's concept may be insuf-
> ficiently refined, so that he includes too many things
> within it. An effective measure of his knowledge of the
> concept must check on his ability to apply the concept,
> perhaps in situations he has never before encountered,
> for the value of technical terms, as in science, is that
> they make possible generalizations so that knowledge can
> be transferred to new problems . . . It follows that the
> ideal vocabulary test will determine reliably, for each
> individual word, whether the student can apply the word
> in every situation where it would be helpful to his
> thinking.

Impressed with Thorndike's[1] method for teaching a con-

cept, Cronback considers that

> Understanding may well be tested from the same
> psychological viewpoint, by asking the student to recog-
> nize when the element is present, whatever the concomi-
> tants, and to recognize when it is absent. The student

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[1] Thorndike, E. L. _Educational Psychology, Briefer
Course_ New York: Teachers College, Columbia University, 1922
pp. 159-161

who is to obtain greatest value from the rule for the area of a parallelogram must know that it applies to a rectangle, a square, a rhombus, or a "diamond," but not to a trapezoid, irregular quadrilateral, hexagon, or figures not lying in a plane. The problem, then, simplifies to one of presenting illustrations of the word tested and situations which the student might incorrectly name with the word, and asking him to distinguish between them.

A test of this sort calls for a yes-no mind set . . . the multiple true-false form is particularly well adapted to the requirements of the problem. An illustration of the form, adapted for vocabulary testing, is

Noun:
__+__ table
__O__ make
__+__ height
__O__ we
__+__ Washington

The technique is adaptable to a wide variety of subjects . . . further examples from chemistry . . . geography, and social studies are given to illustrate something of the possible variations.

Elements: Continent:
  brass   Africa
  iron   North America
  water   Europe
  sulphur   Europe and Asia
  fire   Greenland
  oxygen   the United States

Middle Class (member of):

____ a school teacher making $100 per month
____ the owner of a small grocery
____ a doctor earning around $6000 per year
____ a farmer earning about $700 per year and his
        keep on his own land
____ a factory laborer making $110 per month
____ a college student earning his own expenses

The number of illustrations presented per word depends upon the circumstances of testing; . . . In general, of course, the greater the number of items, the

more satisfactory the measurement. One factor affecting the number of items needed is the number of likely sorts of confusion or error in applying the term.

As a diagnostic test, the multiple-item form is superior to the customary form in which only one response per word is obtained, since when one obtains five or more responses, the student's knowledge is more reliably measured. Furthermore, one obtains a score for each pupil on each word on a scale ranging from +6 to -6 (for a six-item exercise), which makes it possible to discriminate just how nearly the student's knowledge approaches completeness.

Cronback did try out the multiple item true-false technique on a small class in algebra but felt he had insufficient evidence to determine the validity.

Nevertheless, regardless of the particular form or type or style of any testing instrument, greater concern must be shown for evaluating it in its immediate relation to the processes of teaching and learning. Brownell[1] proposes a minimum of five essential criteria for evaluating all tests in relation to the instructional and educative processes involved.

1. Does the test elicit from the pupils the desired types of mental process?

2. Does the test enable the teacher to observe and analyze the thought processes which lie back of the pupil's answers?

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[1]Brownell, William A. "Some Neglected Criteria for Evaluating Classroom Tests" Appraising the Elementary-School Program Sixteenth Yearbook The National Elementary Principal, Bulletin of the Department of Elementary School Principals 16,6:485-92; July 1937 Washington, D.C.: The National Education Association

3. Does the test encourage the development of desirable study habits?

4. Does the test lead to improved instructional practices?

5. Does the test foster wholesome relationships between teacher and pupils?

CHAPTER III

CONSTRUCTION OF VOCABULARY TESTS

<u>Purpose of study</u>.-- The purpose of this study is to

1. Analyze the various skills and mental processes involved in understanding and using words.

2. Survey the different techniques appropriate for training as well as measuring vocabulary knowledge and understanding.

3. Select a set of techniques which can be expected to measure vocabulary ability adequately.

4. Construct a diagnostic vocabulary test or tests.

5. Administer the tests to 200 students in the ninth grade and 200 students in the eleventh grade.

6. Correct the tests and evaluate the results to determine

     a. The significance of different parts of speech for testing precise knowledge of word meanings.

     b. The relative value of recall and recognition techniques for testing precise knowledge of word meanings.

<u>Types of activity involved in vocabulary ability</u>.--
Handling words is regarded as a highly complex mental process
involving concomitants and contingent events of thought itself.
Nevertheless, for a vocabulary testing situation, the mental
activity can be roughly classified under two major types--recall
and recognition.

<u>Aims and objectives</u>.-- Understanding of vocabulary involves,
at various times, the ability

1. To recall an exact noun from the stimulus of an event,
an object or a descriptive phrase.

2. To recall an exact verb from the stimulus of an event
of a descriptive phrase.

3. To recall an exact adjective from the stimulus of an
object, an event or a descriptive phrase.

4. To reason in a verbal equation and name an exact noun.

5. To generalize from a list of words and name a class noun.

6. To explain a word in terms of a function or an attribute.

7. To name and tabulate a list of words that pertain to or
    are related in meaning to a common word.

In certain situations, knowledge of vocabulary involves the
ability

1. To identify a number of synonyms for a single word--
noun, verb, adjective.

2. To identify words which are not synonyms of a specific
word.

3. To identify a number of antonyms for a specific word--noun, verb, adjective.

4. To identify words which are not antonyms of a specific word.

5. To identify a number of applications for a specific word.

6. To identify words which are not applications of a specific word.

7. To identify semantic shifts for words used in sentences.

8. To recognize the figurative use of words.

9. To identify the categories of meaning for certain words.

10. To identify prefixes which can be used with certain words.

11. To identify suffixes which can be used with certain words.

12. To identify the meaning of root words.

Testing techniques.-- An extensive study was made of innumerable workbooks and much literature about vocabulary building, reading and the allied phases of language. From such a survey, the following techniques and methods were gleaned as possible means of testing vocabulary ability. This list is not considered exhaustive--particularly for the various subject areas. Nor are individual techniques regarded as mutually exclusive of each other. But the techniques are judged sufficiently extensive in number and varied in style to permit any person to reveal his potential vocabulary power.

I. Recognition Exercises

A. Multiple Item True-False

1. Synonyms: Nouns, Verbs, Adjectives

Directions: Write S before each word that is a synonym of a numbered word. Write N before each word that is not a synonym of a numbered word.

1. <u>brave</u>

___ votive
___ courageous
___ bold
___ valiant
___ dauntless
___ intrepid

2. <u>business</u>

___ commerce
___ trade
___ industry
___ work
___ concern
___ centerpiece

3. <u>conquer</u>

___ defeat
___ subdue
___ vanquish
___ prospect
___ subjugate
___ chime

2. Antonyms: Nouns, Verbs, Adjectives

Directions: Write A before each word that is an antonym or contrasting word of a numbered word. Write N before each word that is not an antonym or a contrasting word.

1. <u>malice</u>

___ storage
___ charity
___ mercy
___ grace
___ auction
___ kindness

2. <u>powerful</u>

___ impotent
___ weak
___ feeble
___ passive
___ decrepit
___ debonair

3. <u>abolish</u>

___ lean
___ engage
___ institute
___ produce
___ establish
___ create

3. Applied meaning: Nouns, Adjectives

Directions: Write X before each word that applies or illustrates a numbered word. Write N before each word that does not apply or illustrate a numbered word.

1. <u>woman</u>

___ dowager
___ colleen
___ squaw
___ matron
___ damsel
___ mistress

2. <u>artificial</u>

___ pewter
___ glass
___ bronze
___ plastic
___ sky
___ dry ice

B. Matching

   1. Relating words to categories or fields of associated meaning

        Directions: In each blank space, write the number of the
             word with which you associate a lettered word.

     1. dentist   a.__ arch   f.__ incisor
     2. engineer (civil) b.__ transit   g.__ harrow
     3. surgeon   c.__ ether   h.__ level
     4. farmer   d.__ inlay   i.__ plow
     5. carpenter   e.__ scalpel   j.__ disc

   2. Recognition of words associated in meaning (Metonomy)

        Directions: Find words in the second column that are used
             with words in the first column. Write the number of
             a word in the first column beside the correct word
             in the second column. The first one is done cor-
             rectly for you.

     1. sleeve   book __4_
     2. springs   airplane ____
     3. wing   bureau or chest ____
     4. page   bed ____
     5. bay   jacket ____
     6. pane   ocean ____
     7. engine   door ____
     8. buckle   wheel ____
     9. tire   train ____
   10. knob   belt ____

   3. Associating prefixes with the correct word

        Directions: Write the number of the correct prefix before
             each word. Some prefixes can be used more than
             once.

     1.in 2.ad 3.under 4.ap 5.dis 6.de 7.re 8.im 9.pro 10.un

       ____ just   ____ note
       ____ liver   ____ solve
       ____ respectable   ____ generous
       ____ point   ____ grateful
       ____ cede   ____ migrate
       ____ stand   ____ crease
                            ____ vision

4. Associating suffixes with the correct words

Directions: Write the number of the correct suffix after
each word.

1.ment 2.tion 3.sion 4.tain 5.able 6.ing 7.al 8.ly

main ____	constant ____
measure ____	better ____
mechanic ____	judge ____
fortune ____	mount ____
understand ____	repress ____
man ____	consign ____

5. Associating words and phrases

Directions: Write the number of each phrase beside the
word or phrase that completes it.

1. A rebellion develops from .....   ____ in the parsonage

2. On the deserts of Asia and Africa, ____ springs and wells
   camels are the chief means of ....

3. The most recent magazine is the ... ____ last

4. Crowds cheered the regiment of ....   ____ transportation

5. The patient is recuperating .....   ____ of soldiers

6. The minister will live .....   ·   ____ a feeling of unrest
                                              and open defiance

7. An oasis is a place in the desert
   where there are ....   ____ after a long illness

6. Associating words to make compound words

Directions: Write the number of a word in the first column
with the correct word in the second column to make
a compound word.

1. fire	__ day	1. fish	whole __
2. black	__ plane	2. set	hand __
3. wood	__ light	3. or	earth __
4. door	__ board	4. yard	hobby __
5. birth	__ man	5. shot	neighbor __
6. tooth	__ pecker	6. hood	blood __
7. post	__ bird	7. horse	sail __
8. air	__ bell	8. worm	grave __
9. back	__ box	9. some	sun __
10. day	__ ache	10. hearted	sword __

7. Placing words in correct context

    Directions: Write the number of the correct word in each
          blank space.

    1.assistance 2.musician 3.weapon 4.rear 5.burden

    a. If you were a bailif on duty, you would carry ____
    b. The posterior entrance of a building is at the ____
    c. The poverty stricken people wanted ____
    d. If you use cymbals in your profession, you would be a ____

8. Applying words in correct context

    Directions: Write the number of the correct word in each
          blank. Some words are used many times.

    1.square   2.head   3.abandon   4.sanguine

    a. The ____ of 7 is 49.
    b. A carpenter uses his ____ for measuring and lining up his lumber.
    c. The captain gave order to ____ the ship toward the open sea.
    d. A geometric figure with 4 equal sides and angles is a ____.
    e. The president appointed a chairman to ____ the committee.
    f. The ____ of the pin broke off.

9. Evaluating semantic shifts in context

    Directions: Read all the sentences in Section A and notice
          the use of the word case. Then read the sentences in
          Section B. In each blank space, write the number of
          the sentence in Section A which uses case in the same
          or nearly the same sense. The first is done correctly.

Section A

    1. I thought my uncle was in Europe, but such was not the case.
    2. The Portland case completely baffled the detectives.
    3. "You have a very good case," the lawyer told the client.
    4. What is the case of this pronoun?
    5. The officers kept the documents in a steel case.

Section B.

    a. In case of illness, fill in Form 3. 1
    b. The Latin adjective agrees with the noun in number and case.____
    c. Dr. Johnson had a case of diphtheria on his hands.____
    d. The soldier got his case of ammunition.____
    e. In such a case, be sure to inform the police immediately.____
    f. The case of the Stolen Necklace was not solved.____
    g. The defendant pleaded his case boldly.

10. Identifying the meaning of root words

> Directions: Underline the lettered word that most nearly
> gives the meaning of the root word for a series.

1. absolve   dissolve   involve   resolve
   <u>solve</u>: a.develop b.unfold c.separate from d.improve

2. contract   distract   retract   protract
   <u>tract</u>: a.land b.draw c.disjoint d.acknowledge e.eliminate

II. Recall Exercises

A. Completion

 1. Naming

  a. Nouns

> Directions: In the blank space following a phrase, write
> the single word which best describes the meaning of
> the phrase.

  I. FLUID

  1. The watery solution that circulates through trees and shrubs____
  2. The milky fluid from rubber and chicle trees or plants____
  3. The colorless, thickening fluid that oozes from an open place
     in the skin of people____
  4. The fluid which circulates in the veins and arteries of humans____
  5. The fermented juice of grapes____
  6. A drink made from sweetened fruit juices mixed with water--
     usually citrus fruits____
  7. Thin soup in which meat has been gently boiled, sometimes with
     barley or rice____
  8. A sauce for meats, fish or vegetables made by thickening their
     juices____

  b. Verbs

> Directions: In the blank space following a phrase, write the
> single word which best describes the meaning of the
> phrase.

  I. DESTROY

  1. To destroy the unity or form of and reduce to nothing as with
     a defeated army____
  2. To ruin something by violence as a collision of two cars____
  3. To put an end to something like a law or an institution____
  4. To destroy a building by making it level with the ground____
  5. To strip something like a ship or engine of equipment____
  6. To ruin the mass or structure of something by tearing it
     apart and separating the pieces____
  7. To break something into pieces or shatter it as a window____

c. Adjectives

> Directions: In the blank space following a phrase, write the
> single word which best describes the meaning of the
> phrase.

I. GREEN

1. A very young or new and untrained worker____
2. The brilliant green color of a precious stone____
3. A trusting person who is readily deceived or imposed upon____
4. Vegetables or other foods which are not cooked____
5. Naive people, unsophisticated in spite of their age and experience____
6. The greenish-yellow color of a small oval-shaped fruit____
7. Delicate, weak young plants like very small lettuce____
8. Events taking place within the last few weeks or days____

2. Reasoning in a verbal equation and naming a noun

> Directions: Read each line. Then write the correct word to
> complete each analogy.

1. Spring is to summer as fall is to ____
2. Colt is to horse as puppy is to ____
3. ____ is to light bulb as coal is to furnace or boiler .
4. Ink is to writing as paint is to ____
5. Cedar is to ____ as celery is to vegetable.
6. Words are to book as ____ brush.
7. Grape is to raisin as ____ is to lumber.
8. Radio is to communication as airplaine is to ____

3. Generalizing and naming a noun

> Directions: Write the word which is the best name for all the
> things in a line of words. The first is done for you.

1. Apples, peaches, prunes are _fruits_.
2. Iron, gold, aluminum, silver are _____
3. Wheat, barley, corn, oats are _____
4. Trucks, wagons, autos, carts are _____
5. Horses, elephants, tigers, deer are _____
6. Fir, oak, birch, spruce, are _____
7. Roses, lilies, daisies are _____

4. Explaining abstract words in terms of function or attribute

> Directions: Write the correct word to complete each sentence.
> The first letter is given for you.

1. Electricity is used to run f_____
2. Government is an established form of ad_____
3. Pyrotechnic pertains to f_____
4. Democracy is a belief in soc_____ e_____

5. Naming concrete examples to illustrate words

    Directions: Write the correct words to fulfill each set
            of instructions.

1. Two vegetables that grow under the ground _____ _____
2. Two animals that are sheared for their wool _____ _____
3. Three different kinds of guns _____ _____ _____
4. Four different kinds of birds _____ _____ _____ _____
5. Three animals used for beasts _____ _____
   of burden _____

B. Listing concrete examples of specific words

    Directions: Name three things that are

1. poison _____ _____ _____
2. green _____ _____ _____
3. fragrant _____ _____ _____
4. valuable _____ _____ _____
5. high _____ _____ _____

C. Giving impressions to reveal richness of imagery

    Directions: Read each word on left of page. Then write all the
    words that come to your mind. The first one is done for
    you.

	object	smell	sound	taste	color
gooseberry	small round berry	peculiar	squeal after tasting	sour	green
garlic onion					
circus					
sail boat (real)					
green grass					
pony					
monkey					

No attempt has been made to present the techniques in order of difficulty or to arrange them in logical relationships. From time to time and in varying degrees, all the methods will need to be adapted for use with a particular group of students. In most instances, the difficulty of a specific technique can be controlled by selecting easy or familiar and concrete words in contrast to hard or less familiar and more abstract words.

Selection of techniques for test.-- Those techniques were selected for the test of this study that provided

1. An opportunity to test a maximum number of words in a minimum of time and space.

2. An opportunity to test levels of understanding for each word--ranging from complete ignorance to the most precise knowledge.

3. A means of testing genetic or sequential development of language.

4. Objective methods of scoring items.

5. A means of writing very lucid, readily understood items.

6. A minimum of reading material.

7. An opportunity for testing words in a situation which simulated use of context.

8. An effective teaching device as well as testing instrument.

9. A challenging learning situation for the students so that tests would have intrinsic value for functional word study.

10. Diagnostic measure of vocabulary power.

The following techniques were then selected for building a battery of tests that would adequately measure a high school student's precise knowledge of word meanings.

<div align="center">Recognition</div>

Multiple Item True-False	Synonyms	Noun, Verb, Adjective
Multiple Item True-False	Antonyms	Noun, Verb, Adjective
Multiple Item True-False	Applied Meanings	Nouns, Adjectives

<div align="center">Recall</div>

Completion	Synonym	Noun
Completion	Synonym	Verb
Completion	Synonym	Adjective

Since the number of variables in the multiple item true-false tests made it impossible to equate such a form of recognition test with the recall tests, it was decided to hold the three multiple-item true-false tests and prepare recognition-matching tests with the identical items of the recall-completion tests that would be equivalent in practically every detail. Thus, the test lay-out for this project became

<div align="center">Nouns (synonyms)</div>

Recall-completion form	Recognition-matching form

<div align="center">Verbs (synonyms)</div>

Recall-completion form	Recognition-matching form

<div align="center">Adjectives (synonyms)</div>

Recall-completion form	Recognition-matching form

The complete tests in recall-completion and recognition-matching forms may be found in the appendix.

Selecting words for the tests.-- In the interest of sound testing procedure the following types of words were avoided.

1. Obsolete or rare words, so classified according to Webster's International, Collegiate, or Synonym Dictionaries.

2. Foreign words--regardless of nationality.

3. Geographic terms or proper names that depend primarily upon factual knowledge for use and interpretation.

4. Highly technical or unusual and phonetically complex words like

    Medical terms

    Trade names and terms--Kodak, polaroid, inselbric, hydromatic

    Technical classifications

    Professional expressions and general neologisms

5. Slang and vulgarisms--the rough or crude, inaccurate and definitely unrefined expressions.

6. Colloquial and dialectic terms or expressions--so classified in the standard dictionaries.

7. Specific words involving moral or religious issues that might be shocking to some people.

On the other hand it was considered necessary to gather words representative of a good sampling of all fields of the curriculum in the hope of testing vocabulary knowledge which

functions in the study of history, science, civics or mathematics as well as in English composition and literature. Consequently the more common and highly useful words of the language were sought out and used. At the same time, each test item had to be so definitive, specific and possibly picturesque that its definition could be written to preclude any except the very minimum of confusions or misinterpretations.

Of course the grouping of items so that at least five different synonyms could be used for each key word made it possible to include recondite and esoteric words in the range of meaning along a scale from the easy and common words to the more difficult and unusual or abstract.

For each test an attempt was made to gather words so that there would be at least one key word from each letter of the alphabet. At the same time it was planned to gather words representative of a wide variety of occupations--mechanics, cooks, plumbers, shopkeepers, medical workers, and the general professional workers. Also it was desired to maintain a small percentage of words

1. Which girls would be most likely to know.

2. Which boys would be most likely to know.

3. Which children from the rural and farm districts would readily understand.

4. Which children from the seaboard areas, or the mountains, would have considerable knowledge about.

Simultaneously, it was hoped to include a few easy words which the poorer high school students (with reading achievement at approximately sixth grade level) could answer correctly. Likewise, at the opposite pole of achievement, it was desired to have a few extremely difficult words which the very best students would not answer correctly.

For the words in all the multiple item true-false tests, Webster's Dictionary of Synonyms[1] was the source. A master list of some 2000 acceptable words was made by scanning the whole dictionary and noting all dictionary entries which had three or more synonyms--words that were common and useful for writing and reading. This master list was then rated for frequency of use according to the Thorndike-Lorge[2] count. Surprisingly enough the words spread so evenly along the scale from AA to 1 (the first 500 most common words to the least common) that no percentile ranking was worked out. Since only 100 key words were needed for the synonym test, a random sampling was made by taking every twentieth word on the master list. The test list was then checked for words whose area of meaning overlapped to such an extent that many of their synonyms were identical as in the case of hate and loathe.

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[1] Webster's Dictionary of Synonyms Springfield, Mass.: G. & C. Merriam Company, 1942

[2] Thorndike, E. L. and Lorge, Irving The Teacher's Word Book of 30,000 Words New York: Teachers College, Columbia University, 1944

Webster's Dictionary of Synonyms[1] was also the source of
words for the antonym test. A master list of some 1000 accepta-
ble words was made by scanning the whole dictionary and noting
all dictionary entries which had two or more antonyms or con-
trasting words. After the words were rated for frequency of
use according to the Thorndike-Lorge[2] count, a test list was
compiled by making a random sampling that took every tenth word.
The test list was then checked against the synonym test list.
Wherever duplicates appeared, the words were deleted from the
synonym list and retained on the antonym list because it was
so much more difficult to secure key words with a sufficient
number of suitable antonyms.

For the multiple item true-false test of applied meanings,
a master list of some 500 words was gathered from Mawson's[3]
Roget's Thesaurus of the English Language in Dictionary Form.
The test list of key words (150) was selected in the same man-
ner as for the antonym and synonym tests and checked against
those lists to avoid repetitions.

For the three recall-completion tests, words were selected
from Webster's Dictionary of Synonyms and Mawson's arrangement
of Roget's Thesaurus. Separate lists were made of all the

[1]Op. cit.

[2]Op. cit.

[3]Mawson, C. O. Sylvester Roget's Thesaurus of the English
Language in Dictionary Form Garden City, New York: Garden City
Publishing Company, Inc., 1936

acceptable words for each part of speech--noun, verb, adjective. Since each key word had to have at least five synonyms which were sufficiently definitive to preclude obvious confusions and which were within the experience of high school students, each list was comparatively short--between 30 and 50 words for each part of speech. In establishing test lists, random samplings were made similar to those for other tests.

Controlling the difficulty of test items.-- Among single words, peculiar problems arose in connection with controlling difficulty. A very common word used as the key word to a section often had only synonyms which would be most infrequently used in the language experience of the average person. Again a key word might have a very low frequency rating on the Thorndike-Lorge list and yet all of its numerous synonyms would be rated very high on the same list--among the 500 or 1000 most common words.

In constructing the multiple item true-false recognition tests, a rather unique situation developed relative to judging difficulty values. If a very, very uncommon word were selected for a false word, students would be completely uncertain and consequently guess wildly at the answer. However, in the same situation, if the students knew the synonyms for the key word to the degree of precise understanding, they would be able to mark the false word correctly without knowing its meanings and possibly even being able to pronounce it. On the other hand,

if a very concrete and widely used word were placed as the false word for a most uncommon key word, the students might also be uncertain and so revert to guessing.

In arranging items, all words were avoided that would be likely to give the students at least a fifty fifty chance of guessing correctly because of clues revealed by structural elements of the words themselves. For that reason, similarity of endings, prefixes, suffixes, and similarity of root forms made the following words unusable in the multiple item true-false test of applied meanings.

> harbinger under messinger
>
> contradiction, reverberation, solution--as a group of three different words under answer
>
> apiary and aviary as two different items under domestication

Similarly, in writing the definition for unkempt in the recognition-matching item for adjectives, the most readily available definition translated directly from the dictionary included the words--unshaven, uncombed, unpressed. In order to avoid such obvious clues, synonyms with prefixes of un and in were included as distractors among the choice of answers, and the definition for unkempt was revised to read--A man with shaggy beard, tousled hair and baggy clothes.

Definitions always had to be analyzed very carefully in order to avoid extremely heavy concept difficulties over and above the concepts inherent in the meaning of the words being

tested. In the recall and recognition forms of the noun test
the original definition for portion was

> An independent part of anything assigned or given to a
> particular individual or function.

Obviously the expression is abstract. In fact the words "indi-
vidual" and "function" make the meaning so extremely abstract
that the average person would react adversely to the item, and
give up in despair after only brief consideration. Therefore,
the phrase was rewritten with more concrete and specific details
which would be more likely to fall within the common knowledge
and experience of the average high school student--

> An independent section or part of anything given to a
> particular person as his share.

Since examples helped to make many definitions conclusively
specific, examples were given for all items. In each case the
most common application of a word was chosen but of course there
is no way of judging how useful and effective a particular exam-
ple will be for certain children who lack breadth of experience.
In fact it is possible that an example or a specific application
of a word may limit the meaning so greatly that individual stu-
dents will be unable to interpret the definition in light of
their own experience and preconceived notions regarding familiar
words even.

As one means of encouraging proper response set in students
taking the tests, all syntatical, functional or semantic shifts
were carefully controlled in order to avoid betraying the

students while under the strain of test situation. Selection
or classification of synonyms and antonyms requires two dif-
ferent mind sets; therefore, evaluation of ability to deal with
synonyms was considered in a test completely independent of the
test on antonyms. Again, the test of applied meanings was
segregated because it requires a mind set quite different from
that for dealing with the usual test of synonyms. Also, recall-
completion and recognition-matching tests for the different parts
of speech were segregated into different tests in order to avoid
distracting factors which might interfere with an individual's
ability to succeed.

Controlling reading difficulty.-- Reading matter for all
directions and the definitions was kept as simple and as short
as possible. Reading difficulty was maintained at approximately
sixth-grade level by

1. Using simple words--those rated among the four thousand
most common words of the English language according to the
Thorndike-Lorge list.

2. Giving examples for each definition.

3. Limiting the number of conditioning phrases and clauses.

Writing the test items.-- In preparing the recall-completion
and the recognition-matching forms for tests of nouns, verbs and
adjectives, a few of the test items were written as phrases and
tried out on some half dozen subjects--both adults and high
school students. Then the same items were written as sentences

and tried out on the same group of subjects. Since the trial
subjects were equally divided in their opinion about sentence
and phrase forms and since none of the subjects had any serious
objection to the phrase form, the phrase was established as the
means of expressing the definitions because

1. Parallel structure of definitions could be more easily
maintained.

2. Amount of reading material was reduced, thereby reducing
the time for taking tests and probably reducing the reading dif-
ficulty.

3. The answers could be planned more definitely for the
right-hand side of the page.

In writing definitions, the language and interpretation of
the standard dictionary was strictly observed. Not a single
definition was prepared without consulting both Webster's Col-
legiate Dictionary and Webster's International Dictionary. In
the case of words where the meaning was involved and perplexing,
the fine discriminations explained in full in Webster's Diction-
ary of Synonyms were studied. Strict adherence to the dictionary
interpretations was maintained because of

1. Weight of authority furnished by standard lexicographers.

2. Accuracy insured by close study of standard dictionaries.

3. Universality of appeal gained by writing parallel to the
writing of the proficient editorial staff for a dictionary.

4. Use of words in their strictest literary sense.

CHAPTER IV

EXPERIMENTAL STUDY OF VOCABULARY KNOWLEDGE

General information concerning the experiment.-- In order
to determine the relative value of recall and recognition tech-
niques, and the significance of different parts of speech for
testing precise knowledge of word meanings, separate tests of
115 items each were prepared in recall and recognition forms
for nouns, verbs, adjectives. The tests were set up in type by
students in the printing shop of a local industrial school for
crippled children. The experiment was conducted in the ninth
and eleventh grades in the high school for a suburb of Boston
during the month of May 1948. Some 490 students participated
in the project but statistical data was prepared only on the
402 students for whom there were scores on all tests. The regu-
lar English teachers of the high school administered all the
tests at their convenience in the regularly scheduled class
periods. The testing program included

1. California Short-Form Test of Mental Maturity[1]
   (Advanced)
2. Vocabulary--Noun (Recall and recognition forms)
3. Vocabulary--Verb (Recall and recognition forms)
4. Vocabulary--Adjective (Recall and recognition forms)

[1]California Short-Form Test of Mental Maturity Hollywood,
California: California Test Bureau, 1943

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The project was initiated by a meeting with all the English teachers of the ninth and eleventh grades. After a brief explanation of the purpose and program for the experiment, the following directions in mimeographed form along with a complete set of tests were handed to each teacher and use of all materials was explained as fully as individual teacher required.

Directions for Participating in Vocabulary Testing Project

1. Administer the group intelligence test as soon as possible. It is preferred that no test be given the first period on a Monday morning or the last period on a Friday afternoon.

   Testing time: approximately 45 minutes. Be sure to allow the students in any class a full ten minutes for taking the vocabulary section. If the time is running short, you may collect the test booklets and answers sheets upon completion of test 5 and give test 6 (Vocabulary) on the following day.

2. Vocabulary tests

   a. Time: approximately 41 minutes for each form of each test.

   b. Order

   Give the recall form of every test ahead of the recognition form for the same test. Always give the recognition form within a week of the time its recall form was given-- except in cases of absence.

   Rotate the order in which the different tests are given in the series so that approximately an equal number of classes will have taken adjectives first (recall-recognition), verbs first (recall-recognition), nouns first (recall-recognition). For those teachers with only one class, please use an order established in conference with other teachers having only one class to be tested.

   c. Directions

   Please be reasonably certain that each student understands the directions for each test form. For both forms of the first test in the series, it might be well to read the directions aloud and work the sample with the class.

> Maintain as favorable testing conditions as possible.
> See that the room is quiet and comfortable. Allow no
> reference to a dictionary or any textbook with a
> glossary of definitions. Seat the children far enough
> apart to prevent copying answers. Announce the time
> frequently and encourage the students to try as many
> different items as possible in the allotted time.

The teachers had the students mark the test booklets--
first, second, third--according to the order the tests were
taken in the series. As the tests were collected from the
school, an accounting was made of the order in which the sepa-
rate tests were rotated for the different classes.

TABLE I

AN ACCOUNTING OF THE NUMBER OF CLASSES TAKING EACH TEST
AT THE VARIOUS POSITIONS IN THE SERIES

Serial Order	Test		
	Nouns	Verbs	Adjectives
First	///////	///	/////
Second	///	///////	////
Third	/////	//////	///////

Unfortunately, the teachers forgot to have some three or four
classes mark the order in which the tests were administered.
In a few instances teachers divided their classes. Also, no
attempt was made to equate the various English classes in re-
lation to number of students or mental age. Consequently there
is no complete or precise record of the rotation of vocabulary

tests. Nevertheless, the above tabulation is considered adequate to insure that no one test was ever given at any single position in the series for all classes.

Correcting the tests.-- All tests were corrected by one person--the author of the vocabulary tests. The penmanship of the majority of students was so poor that it was considered absolutely necessary to control variables involved in deciphering the word or letter forms. Some 450 intelligence tests were scored by machine. All vocabulary tests were scored by hand. A key was first prepared from the original list of words for which phrase definitions were written as test items. This scoring key was always revised in light of the confusions and legitimate errors made by the students in the upper quartile of the mental age grouping. Where definitions were not definitive enough to prevent misinterpretation by a good number of the most capable students, alternative answers were accepted for either the recall or recognition form of any test. For the recall form of every test credit was given for any spelling which indicated that the student had the correct word in mind. Accordingly coat or cote or clot was accepted for colt, unkept was accepted in place of unkempt, and enforce for reenforce. Also the verb form of the correct word or words was accepted for the noun or adjective (participle) form and vice versa. On the contrary, impersonator was not accepted for imposter because there was too great a possibility that the students

were actually confusing the meanings of the two words.

Description of population.-- The suburb of Boston, where
the experiment of this project was made, is typical of communi-
ties adjacent to highly industrialized areas surrounding large
cities. The socio-economic status of fully 90 per cent of the
citizens is low and the cultural advantages furnished by the
homes are meager. At least three-fourths of the high school
students are second generation American citizens but not over
5 per cent come from homes where a foreign language is spoken
except infrequently by the parents to a grandparent or some
other aged member of the clan. The population is predominantly
Italian in origin with a scattering of Irish, Polish, French
Canadian, German, Greek. Students of the ninth and eleventh
grades are old for their grade level and the range in chrono-
logical ages is greater than would be expected even in the ninth
grade where no war veterans are enrolled.

In the following tables, the most pertinent details in
the description of the population are presented as statistical
data.

TABLE II

MEANS AND STANDARD DEVIATIONS OF CHRONOLOGICAL AGES
AND MENTAL AGES BY GRADES FOR TOTAL POPULATION[1]

Test	Grade	No. Cases	Mean C.A. (months)	S.D.	Mean M.A. (months)	S.D.
Total Mental Factors	IX	192	183.83		169.93	22.35
Non Language	IX	192	183.83		167.35	38.93
Language	IX	192	183.83		172.70	21.46
Total Mental Factors	XI	210	205.67		196.08	23.41
Non Language	XI	210	205.67		194.38	41.03
Language	XI	210	205.67		196.94	23.67

TABLE III

RANGE AND MEAN CHRONOLOGICAL AGES FOR
BOYS AND GIRLS

Sex	Grade	No. Cases	Range in C.A. (months)	Mean C.A. (months)
Boys	IX	95	156-211	185.49
Girls	IX	97	165-207	182.21
Boys	XI	96	183-251	207.67
Girls	XI	114	183-232	204.01

[1]All mental ages in this study have been taken from the
California Short-Form Test of Mental Maturity.

TABLE IV

RANGE AND MEAN MENTAL AGES (TOTAL MENTAL FACTORS)
FOR BOYS AND GIRLS

Sex	Grade	No. Cases	Mean C.A. (months)	Range in M.A. (months)	Mean M.A. (months)
Boys	IX	95	185.49	104-233	175.53
Girls	IX	97	182.21	108-216	166.90
Boys	XI	96	207.64	149-257	201.09
Girls	XI	114	204.01	135-268	191.85

TABLE V

RANGE AND MEAN MENTAL AGES (NON LANGUAGE)
FOR BOYS AND GIRLS

Sex	Grade	No. Cases	Mean C.A. (months)	Range in M.A. (months)	Mean M.A. (months)
Boys	IX	95	185.57	99-259	172.28
Girls	IX	97	182.21	96-268	162.54
Boys	XI	96	207.64	125-289	206.1
Girls	XI	114	204.01	118-280	184.50

In both grades, girls did not do well on the non language section of the intelligence test. In fact the girls fell so low on this section that they have lowered the mean mental age (Total Mental Factors) for both grades.

TABLE VI

RANGE AND MEAN MENTAL AGES (LANGUAGE)
FOR BOYS AND GIRLS

Sex	Grade	No. Cases	Mean C.A. (months)	Range in M.A. (months)	Mean M.A. (months)
Boys	IX	95	185.49	114-223	172.28
Girls	IX	97	182.21	114-226	169.94
Boys	XI	96	207.64	156-258	199.36
Girls	XI	114	204.01	133-283	194.90

On the language section of the mental test, girls succeeded much better than on the non language section. Yet their mean mental age continues to be about 3 months below the mean for their grade and from 3 to 5 months below the mean mental age for boys. Consequently, for both Grade IX and Grade XI, the girls appear to possess less mental ability than the boys.

According to the results on the California Short-Form Test of Mental Maturity, the mean mental age for the population of this experimental project is approximately 12 months below the mean chronological age--14 months below for Grade IX and 9 months below for Grade XI. Closer analysis of the various factors reveals that

1. For girls in both grades, the mean mental age on every section of the intelligence test is below the mean mental age for the grade.

2. For boys, in both grades, the mean mental age on every section of the test is above the mean mental age for the grade.

3. The girls were at a serious disadvantage on the non language section. On this section the mean mental age for girls is as much as 22 months below the mean for boys in Grade XI.

4. The range in mental ages is wide. For Grade IX the lowest mental age is 8-8 and the highest is 19-5. For Grade XI the lowest mental age is 11-3 and the highest is 22-4. In Grade IX 30 per cent of the students have mental ages that exceed the mean chronological age for Grade IX. In Grade XI, 34 per cent of the students have mental ages above the mean chronological age for Grade XI.

5. The distribution for both grades is skewed. Approximately 50 per cent of the population have mental ages less than 4 months below the mean chronological age for their group.

Therefore, the population may be judged a fairly satisfactory sampling of high school students for the experimental project with the vocabulary tests of this study.

Achievement on vocabulary tests.-- Raw scores on the vocabulary tests indicate a wide range in vocabulary ability. Of the 490 students participating in the project, there were no perfect test scores on either form of any test. Among the 402 participating students who completed the full set of tests-- one intelligence test and three vocabulary tests--there were no zero scores.

TABLE VII

RANGE AND MEAN TOTAL RAW SCORE FOR RECALL FORM--
NOUNS, VERBS, ADJECTIVES

Grade	No. Cases	Perfect Score	Range in Raw Score	Mean	S.D.
IX	192	346	13-145	65.31	26.97
XI	210	346	33-164	91.78	29.12

TABLE VIII

RANGE AND MEAN TOTAL RAW SCORE FOR RECOGNITION FORM--
NOUNS, VERBS, ADJECTIVES

Grade	No. Cases	Perfect Score	Range in Raw Score	Mean	S.D.
IX	192	346	54-260	151.855	44.50
XI	210	346	50-301	186.13	48.65

TABLE IX

RANGE AND MEAN RAW SCORES FOR RECALL FORM OF
SEPARATE VOCABULARY TESTS

Test	Grade	No. Cases	Perfect Score	Range	Mean	S.D.
Nouns	IX	192	115	5-72	34.208	13.49
Verbs	IX	192	116	4-64	22.456	10.92
Adjectives	IX	192	115	1-40	10.842	5.74
Nouns	XI	210	115	11-80	46.004	15.11
Verbs	XI	210	116	4-69	30.316	11.57
Adjectives	XI	210	115	3-37	17.142	6.73

TABLE X

RANGE AND MEAN RAW SCORES FOR RECOGNITION FORM OF
SEPARATE VOCABULARY TESTS

Test	Grade	No. Cases	Perfect Score	Range	Mean	S.D.
Nouns	IX	192	115	17-101	61.525	17.90
Verbs	IX	192	116	9-93	55.7	16.92
Adjectives	IX	192	115	3-78	34.945	14.02
Nouns	XI	210	115	18-111	71.190	18.57
Verbs	XI	210	116	8-108	68.710	19.06
Adjectives	XI	210	115	4-93	47.285	16.97

Data presented in the preceding tables provides some evidence concerning the sensitivity and suitability of each of the tests for the experimental population of this project. The range of scores indicates that the tests are sufficiently easy for poorer students to score yet difficult enough to give the best students and the more mature students of a higher grade level an adequate ceiling for testing their potential vocabulary knowledge. Degree of achievement based upon the size of mean raw score establishes the order of test difficulty from easiest to hardest as noun, verb, adjective. This order persists on both recall and recognition forms of the separate tests even though achievement on the recognition form is 1.5 to 3 times

higher than on the recall form. For both test forms the difference in mean raw score between noun and adjective and verb and adjective is substantial and consistent for both grades. In recall test form only, the difference in mean raw score between noun and verb is substantial and consistent from grade to grade.

The increase in mean raw score for each form of every test from Grade IX to Grade XI indicates that the tests are suitable for both grade levels of high school.

TABLE XI

GRADE DIFFERENCES IN MEAN RAW SCORES FOR RECALL AND
RECOGNITION FORMS OF SEPARATE VOCABULARY TESTS

Test	Mean for Grade IX	Mean for Grade XI	Difference of Means
Recall			
Noun	34.208	46.004	11.796
Verb	22.456	30.316	8.140
Adjective	10.842	17.142	6.30
Recognition			
Noun	61.525	71.190	9.565
Verb	55.7	68.710	13.01
Adjective	34.945	47.285	12.340

On the recall form, the greatest grade difference occurs in the noun test and the least in the adjective test. On the recognition form, the greatest grade difference occurs in the verb

test and the least in the noun test, though the highest mean
raw score of all the tests is on the noun test. In every in-
stance except for verb test--recognition form, the difference
in mean raw score of the separate tests exceeds the grade dif-
ference in mean raw score for a single test in either form.

Frequency tables are given for each test in order to pre-
sent more graphically

1. The normal distribution of the scores.

2. The central tendency and variability.

3. Range in achievement by grades for total population.

4. Grade differences for each test.

TABLE XII

DISTRIBUTION OF RAW SCORES OBTAINED ON THE NOUNS--RECALL FORM

Raw Scores	Number of Pupils	
	Grade IX	Grade XI
77-80		4
73-76		3
69-72	1	4
65-68	4	13
61-64	0	18
57-60	5	14
53-56	10	21
49-52	10	16
45-48	12	19
41-44	18	18
37-40	16	22
33-36	28	18
29-32	24	14
25-28	18	9
21-24	14	3
17-20	12	7
13-16	11	7
9-12	5	0
5-8	4	0
Total	192	210
Mean	34.208	46.004
S.D.	13.49	15.11

TABLE XIII

DISTRIBUTION OF RAW SCORES OBTAINED FOR VERBS--
RECALL FORM

Raw Score	Number of Pupils	
	Grade IX	Grade XI
73-116		
68-72		1
64-67	1	0
60-63	0	2
56-59	0	5
52-55	2	2
48-51	0	7
44-47	6	13
40-43	8	12
36-39	8	20
32-35	10	25
28-31	17	26
24-27	28	32
20-23	24	29
16-19	35	22
12-15	22	9
8-11	22	4
4-7	9	1
Total	192	210
Mean	22.456	30.316
S.D.	10.92	11.57

TABLE XIV

DISTRIBUTION OF RAW SCORES OBTAINED FOR ADJECTIVES--
RECALL FORM

Raw Score	Number of Pupils	
	Grade IX	Grade XI
42-115		
39-41	1	
36-38	0	2
33-35	0	0
30-32	0	3
27-29	2	11
24-26	2	10
21-23	2	14
18-20	6	28
15-17	12	34
12-14	25	42
9-11	32	31
6-8	53	25
3-5	43	10
0-2	14	0
Total	192	210
Mean	10.842	17.142
S.D.	5.74	6.73

TABLE XV

DISTRIBUTION OF RAW SCORES OBTAINED FOR NOUNS--
RECOGNITION FORM

Raw Score	Number of Pupils	
	Grade IX	Grade XI
112-115		
107-111		1
102-106		5
97-101	2	9
92-96	7	9
87-91	8	19
82-86	15	22
77-81	11	25
72-76	16	31
67-71	14	16
62-66	21	15
57-61	24	15
52-56	18	9
47-51	15	9
42-46	14	7
37-41	6	8
32-36	12	4
27-31	7	1
22-26	0	4
17-21	2	1
Total	192	210
Mean	61.525	71.190
S.D.	17.90	18.57

TABLE XVI

DISTRIBUTION OF RAW SCORES OBTAINED FOR VERBS--
RECOGNITION FORM

Raw Score	Number of Pupils	
	Grade IX	Grade XI
109-116		
108-		1
103-107		0
98-102		9
93-97	1	6
88-92	5	16
83-87	4	21
78-82	11	20
73-77	22	29
68-72	10	19
63-67	13	21
58-62	18	14
53-57	14	14
48-52	23	9
43-47	30	7
38-42	19	14
33-37	7	1
28-32	5	2
23-27	7	2
18-22	2	2
13-17	1	1
8-12		2
Total	192	210
Mean	55.7	68.710
S.D.	16.92	19.06

TABLE XVII

DISTRIBUTION OF RAW SCORES OBTAINED FOR ADJECTIVES--RECOGNITION FORM

Raw Score	Number of Pupils	
	Grade IX	Grade XI
94-115		
93-		1
88-92		4
83-87		1
78-82		5
73-77		7
68-72	4	10
63-67	5	12
58-62	7	11
53-57	10	26
48-52	11	16
43-47	17	24
38-42	19	32
33-37	22	21
28-32	26	17
23-27	35	15
18-22	21	3
13-17	13	2
8-12	2	2
3-7		1
Total	192	210
Mean	34.945	47.285
S.D.	14.02	16.97

Summary.-- Specific data on the population participating in the experiment with the vocabulary tests for this project reveal the following facts.

1. The mean mental age indicates that the population is retarded about 12 months in mental age according to results of California Short-Form Test of Mental Maturity. The girls appear to be more seriously retarded than the boys.

    a. The mean chronological age is 183.83 months for Grade IX and 205.67 months for Grade XI.

    b. The mean mental age (Total Mental Factors) is 169.93 months for Grade IX and 196.08 months for Grade XI.

    c. The range in mental ages runs from 104 to 233 months for Grade IX and from 135 to 268 months for Grade XI. Therefore, the population includes a good sampling of students with superior and high average mental ability as well as students with low average and subnormal mental ability.

2. Scores on the vocabulary tests indicate that there is a wide range in vocabulary ability for the population.

    a. For each test form of the three separate vocabulary tests, the distribution of scores for each grade is normal in form.

    b. There is a wide range between the highest and lowest scores but there are no perfect scores and there are

no zero scores.

c. Grade differences in mean vocabulary achievement for
each form of the separate tests ranges from 6.30 to
13 points.

CHAPTER V

ANALYSIS OF DATA

The supplementary experiment of this thesis with vocabulary tests in recall and recognition forms for nouns, verbs, adjectives has provided a vast amount of highly significant data concerning vocabulary function. To complete this project, however, the dissertation is being limited to a status study. Consideration is given to factors deemed fundamental in measuring precise knowledge of word meanings, namely

1. The relative value of recall and recognition techniques for vocabulary testing.

2. The significance of different parts of speech for understanding of word meanings.

Therefore, analysis of data will be organized and presented in accordance with the following outline.

I. Comparison of recall and recognition techniques as testing instruments

    A. Statistical significance of differences in mean raw scores for recall and recognition forms of vocabulary tests

        1. Total raw scores for recall and recognition forms of all tests

        2. Raw scores for recall and recognition forms of separate tests

B. Coefficients of correlation

    1. Total raw score on recall form and total raw score on recognition form for each grade

    2. Total raw score on recall form and total raw score on recognition form for each grade

        -- upper quarter of population (mental age)

        -- lower quarter of population (mental age)

    3. Vocabulary test form and mental age on <u>California Short-Form</u> <u>Test</u> <u>of</u> <u>Mental</u> <u>Maturity</u>

        Total raw score on recall form and mental age

        Total raw score on recognition form and mental age

II. Comparison of achievement on tests for different parts of speech

A. Statistical significance of differences in mean raw scores of different tests

B. Coefficients of correlation

    1. Correlation between raw scores on each form for separate tests

    2. Correlation between total raw score on each test and mental age

III. Sex differences

IV. Reliability

V. Validity

<u>Comparison of recall and recognition techniques.</u>-- In the vocabulary tests of this study, where identical items have been used in both forms of each test, the mean raw scores on the recognition form of all three tests run from 1.5 to 3 times higher than the mean raw scores on the recall form of the three

tests. In order to determine the statistical significance of this difference in mean raw scores for recall and recognition forms, critical ratios have been computed.

TABLE XVII

COMPARISON OF MEAN TOTAL RAW SCORES--RECALL AND
RECOGNITION TEST FORMS FOR TOTAL POPULATION

Test Form	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Recall	IX	192	65.31	1.94	26.97	86.545	3.75	23.037
Recognition	IX	192	151.855	3.21	44.50			
Recall	XI	210	91.78	2.0	29.12	94.35	3.89	24.25
Recognition	XI	210	186.13	3.36	48.65			

TABLE XVIII

COMPARISON OF MEAN RAW SCORES FOR RECALL AND
RECOGNITION FORMS OF NOUN TEST

Test Form	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Recall	IX	192	34.208	.973	13.49	27.213	1.61	16.45
Recognition	IX	192	61.525	1.29	17.90			
Recall	XI	210	46.004	1.04	15.11	25.196	1.66	15.17
Recognition	XI	210	71.190	1.28	18.57			

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TABLE XIX

COMPARISON OF MEAN RAW SCORES FOR RECALL AND
RECOGNITION FORMS OF VERB TEST

Test Form	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Recall	IX	192	22.456	.79	10.92	33.344	1.45	22.92
Recognition	IX	192	55.7	1.22	16.92			
Recall	XI	210	30.316	.79	11.57	38.394	1.53	25.09
Recognition	XI	210	68.710	1.32	19.06			

TABLE XX

COMPARISON OF MEAN RAW SCORES FOR RECALL AND
RECOGNITION FORMS OF ADJECTIVE TEST

Test Form	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Recall	IX	192	10.842	.414	5.74	24.103	1.09	22.09
Recognition	IX	192	34.945	1.011	14.02			
Recall	XI	210	17.142	.464	6.73	30.143	1.58	23.90
Recognition	XI	210	47.285	1.17	16.97			

Critical ratios for the total raw score and the separate test raw scores are extremely high for both Grade IX and Grade XI.

Therefore, the difference in achievement on recall and recognition test forms is statistically significant for the vocabulary tests used in this project.

Examination of the relationships involved in recall and recognition vocabulary abilities is carried still further in the following tables.

TABLE XXI

COEFFICIENT OF CORRELATION BETWEEN THE TOTAL RAW SCORES
FOR RECALL AND RECOGNITION FORMS FOR EACH GRADE

Test Form	Grade	No. Cases	Recognition r	Correction For Attenuation
Recall	IX	192	.62 ± .04	.70
Recall	XI	210	.60 ± .05	.72

The correlation between total raw scores for recall and recognition test forms is positive but only moderately high. For Grade IX correlation between recall and recognition techniques is around .15 higher than the correlation between either recall or recognition forms and mental age. For Grade XI the correlation between recall and recognition is from .02 to .09 higher than the correlation between either test form and mental age.

In lieu of the fact that achievement on the total recognition vocabulary is approximately 2.5 times greater than

achievement on the total recall vocabulary, a partial explanation of the moderate degree of correlation between the two techniques may be that many low achievers on recall actually are able to make higher scores on recognition forms. In correcting the tests and tabulating scores, it was observed that students making a very, very low score on a recall form would make a higher score on the recognition form of the same test. On the other hand, a student making a score above the mean on recall seldom made an appreciably lower score on the recognition form of the same test.

TABLE XXII

COEFFICIENT OF CORRELATION BETWEEN THE TOTAL RAW SCORES
FOR RECALL AND RECOGNITION FORMS FOR TOP QUARTER OF
POPULATION (STUDENTS WITH HIGHEST M.A.)

Test Form	Grade	No. Cases	Recognition r	Correction For Attenuation
Recall	IX	60	.61 $\pm$ .07	.69
Recall	XI	53	.52 $\pm$ .10	.62

Correlation between recall and recognition test forms for the bright students is positive but no higher than the correlation between those two factors for the total population. A more extensive interpretation of the data in Table XXII is difficult. Some explanation of the inconsistencies in the correlation may be found, possibly, in the fact that the number

of cases in the top quarter for each grade was small and that
the number of really superior intellects in the population was
too small to influence test results.

TABLE XXIII

COEFFICIENT OF CORRELATION BETWEEN THE TOTAL RAW SCORES
FOR RECALL AND RECOGNITION FORMS FOR LOWER QUARTER OF
POPULATION (STUDENTS WITH LOWEST M.A.)

Test Form	Grade	No. Cases	Recognition r	Correction For Attenuation
Recall	IX	61	.63 $\pm$ .08	.73
Recall	XI	62	.32 $\pm$ .11	.39

For students in the lower quarter of the population ac-
cording to mental age on the California Short-Form Test of Men-
tal Maturity, the correlation between raw scores on recall and
recognition is positive but strangely different for the two
grades. Inspection of the original charts with tabulations of
raw scores reveals that the poorer students of Grade IX run
consistently low on both forms of any test. Thus, the correla-
tion of .60 for Grade IX may be interpreted as meaning that stu-
dents retarded two to five years in mental ability do not suc-
ceed any better on the recognition form than on the recall form
of each test--particularly the adjective test. Since the Eng-
lish teachers spoke of the prevalence of reading disabilities
among students in Grade IX, it is possible that inadequate

reading skill interfered with the recognition of the correct words and, therefore, limited achievement.

The low positive correlation of .32 for lower quarter of Grade XI could result from the fact that the advanced students of this grade are slightly more successful on the recognition form of the majority of tests than on the recall form.

In an attempt to make a more complete evaluation of recall and recognition techniques, analysis of data is extended to include a consideration of the relationships between intelligence and test form.

TABLE XXIV

COEFFICIENTS OF CORRELATION BETWEEN TOTAL RAW SCORE ON
RECALL FORM AND MENTAL AGE FOR TOTAL POPULATION[1]

	Grade IX r	Grade XI r
Total Mental Factors	.477 ± .06	.58 ± .05
Non Language	.298 ± .07	.355 ± .06
Language	.448 ± .06	.534 ± .05

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[1]All references to mental age are to those obtained from the California Short-Form Test of Mental Maturity (Advanced Form).

TABLE XXV

COEFFICIENTS OF CORRELATION BETWEEN TOTAL RAW SCORE ON
RECOGNITION FORM AND MENTAL AGE FOR TOTAL POPULATION

	Grade IX r	Grade XI r
Total Mental Factors	.472 ± .06	.518 ± .05
Non Language	.168 ± .07	.241 ± .07
Language	.545 ± .05	.514 ± .05

While the correlations in Tables XXIV and XXV are positive
and fairly high, they are not sufficiently significant to war-
rant a prolonged interpretation. It is to be expected that the
correlation for both techniques with non language would be low
since the vocabulary test items are strictly verbal and con-
structed in such strict observance of dictionary definitions.
Also, it is readily understood why the correlation between recog-
nition form and mental age on the language section is as high or
higher than the correlation on total mental factors since the
recognition form is more fully dependent on a larger number of
verbal factors than the recall form. On the other hand it is
noteworthy that recall and recognition correlate about equally
well with mental age and that there are consistent grade differ-
ences in the degree of correlation between mental age and
achievement on either recall or recognition form.

Comparison of achievement on separate vocabulary tests.--
Since the test items are segregated according to parts of speech
and since the different tests are equated in form, style of writ-
ing, and length, it is possible to investigate factors relative
to parts of speech--nouns, verbs, adjectives. The first fact
noted in inspecting the scores is the difference in achievement
for the various tests. This difference is evaluated in terms of
critical ratios also.

TABLE XXVI

COMPARISON OF MEAN RAW SCORES FOR NOUNS AND VERBS--RECALL FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Nouns	IX	192	34.208	.97	13.49			
						11.752	1.57	9.39
Verbs	IX	192	22.465	.79	10.92			
Nouns	XI	210	46.004	1.04	15.11			
						15.688	1.72	11.86
Verbs	XI	210	30.316	.80	11.57			

TABLE XXVII

COMPARISON OF MEAN RAW SCORES FOR NOUNS AND ADJECTIVES--
RECALL FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Nouns	IX	192	34.208	.97	13.49			
Adjec-tives	IX	192	10.842	.41	5.74	23.37	1.06	22.0
Nouns	XI	210	46.004	1.04	15.11			
Adjec-tives	XI	210	17.142	.46	6.73	28.86	1.14	25.27

TABLE XXVIII

COMPARISON OF MEAN RAW SCORES FOR VERBS AND ADJECTIVES--
RECALL FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Verbs	IX	192	22.456	.79	10.92			
Adjec-tives	IX	192	10.842	.414	5.74	11.614	.94	12.31
Verbs	XI	210	30.316	.80	11.57			
Adjec-tives	XI	210	17.142	.46	6.73	13.174	.92	14.29

TABLE XXIX

COMPARISON OF MEAN RAW SCORES FOR NOUNS AND VERBS--
RECOGNITION FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Nouns	IX	192	61.525	1.29	17.90	6.825	1.78	3.83
Verbs	IX	192	55.7	1.22	16.92			
Nouns	XI	210	71.190	1.28	18.57	2.48	1.83	1.35
Verbs	XI	210	68.71	1.315	19.06			

TABLE XXX

COMPARISON OF MEAN RAW SCORES FOR NOUNS AND ADJECTIVES--
RECOGNITION FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Nouns	IX	192	61.525	1.29	17.90	26.580	1.64	16.19
Adjectives	IX	192	34.945	1.01	14.02			
Nouns	XI	210	71.190	1.28	18.57	23.905	1.73	13.79
Adjectives	XI	210	47.285	1.17	16.97			

TABLE XXXI

COMPARISON OF MEAN RAW SCORES FOR VERBS AND ADJECTIVES--
RECOGNITION FORM

Test	Grade	No. Cases	Mean	S.E. M	S.D.	Diff.	S.E. Diff.	C.R.
Verbs	IX	192	55.7	1.22	16.92	20.755	1.73	12.01
Adjectives	IX	192	34.945	1.22	14.02			
Verbs	XI	210	68.710	1.31	19.06	21.425	1.76	12.15
Adjectives	XI	210	47.285	1.17	16.97			

For the difference in achievement on each form of the separate tests, the critical ratios again are high except for the recognition form of nouns and verbs and consequently significant with the single exception. There is a consistent grade difference in favor of Grade XI for the recall form of all tests. But for the recognition form on all tests, the grade difference is inconsistent and is in favor of Grade IX in two of the three comparisons.

Vocabulary factors relative to different parts of speech, as well as to recall and recognition activities, are considered from a different approach in the following tables.

TABLE XXXII

COEFFICIENT OF CORRELATION BETWEEN RAW SCORES ON RECALL
FORM OF THE SEPARATE TESTS FOR GRADE IX

Test	Verb Recall r	Correction For Attenuation	Adjective Recall r	Correction For Attenuation
Noun Recall	.757 ± .03	.87	.583 ± .05	.70
Verb Recall			.606 ± .06	.70

TABLE XXXIII

COEFFICIENT OF CORRELATION BETWEEN RAW SCORES ON RECALL
FORM OF THE SEPARATE TESTS FOR GRADE XI

Test	Verb Recall r	Correction For Attenuation	Adjective Recall r	Correction For Attenuation
Noun Recall	.652 ± .04	.80	.5598 ± .05	.72
Verb Recall			.538 ± .05	.70

TABLE XXXIV

COEFFICIENT OF CORRELATION BETWEEN RAW SCORES ON
RECOGNITION FORM OF THE SEPARATE TESTS FOR
GRADE IX

Test	Verb Recognition r	Correction For Attenuation	Adjective Recognition r	Correction For Attenuation
Noun Recognition	.715 ± .04	.78	.794 ± .03	.84
Verb Recognition			.741 ± .03	.80

TABLE XXXV

COEFFICIENT OF CORRELATION BETWEEN RAW SCORES ON
RECOGNITION FORM OF THE SEPARATE TESTS FOR
GRADE XI

Test	Verb Recognition r	Correction For Attenuation	Adjective Recognition r	Correction For Attenuation
Noun Recognition	.716 ± .03	.79	.657 ± .04	.71
Verb Recognition			.638 ± .04	.70

Correlations between the separate tests run much higher than the previous correlations in this dissertation between test forms or between each test form and mental age. The highest correlations occur for nouns and adjectives and verbs and adjectives in recognition form. The lowest correlation occurs for those same tests on the recall form. The different correlations are consistently lower for Grade XI than for Grade IX except for nouns and verbs in recognition form. It is particularly interesting that adjectives show a higher correlation with nouns and verbs on the recognition test form than on the recall test form. Also, in light of the maturation factor, it is peculiar that the correlation between adjectives and verbs or nouns is lower for Grade XI than for Grade IX.

In order to study the relationships of intelligence to different parts of speech, coefficients of correlation between mental age and vocabulary tests for nouns, verbs and adjectives

are given in the following tables.

TABLE XXXVI

COEFFICIENT OF CORRELATION BETWEEN MENTAL AGE AND TOTAL
RAW SCORE FOR THE SEPARATE VOCABULARY TESTS FOR
GRADE IX

	No. Cases	Total Noun r	Total Verb r	Total Adjective r
Total Mental Factors	192	.505 ± .05	.451 ± .06	.433 ± .06
Non Language	192	.274 ± .07	.192 ± .07	.146 ± .07
Language	192	.511 ± .05	.495 ± .05	.505 ± .05

TABLE XXXVII

COEFFICIENT OF CORRELATION BETWEEN MENTAL AGE AND TOTAL
RAW SCORE FOR THE SEPARATE VOCABULARY TESTS FOR
GRADE XI

	No. Cases	Total Noun r	Total Verb r	Total Adjective r
Total Mental Factors	210	.579 ± .05	.512 ± .05	.507 ± .05
Non Language	210	.332 ± .06	.281 ± .06	.203 ± .07
Language	210	.537 ± .05	.488 ± .05	.525 ± .05

The highest correlations between separate tests and mental
age (Total Mental Factors) are only moderately high and the
lowest of .43 for adjectives is barely high enough to be

considered of marked significance. Comparison of correlations between mental age and total raw score (recall and recognition) for each test with correlations (Tables XXIV and XXV) between mental age and total raw score for a test form (including nouns, verbs, adjectives) reveals that the range of correlations is approximately the same for the two arrangements of factors. It is undoubtedly worth-while to note that the lowest correlations are for the adjective test. In concluding this interpretation it is observed that vocabulary tests for different parts of speech appear to have no more factors in common with intelligence than either recall or recognition test form has when a test form is considered for its composite score on nouns, verbs, adjectives.

Sex differences in vocabulary achievement.-- For this study, investigation of sex differences in vocabulary achievement is carried no further than reporting that the boys of this population maintain higher mean raw scores than girls.

Without equating boys and girls according to mental age, the difference in mean total raw score favors the boys by 8 points in Grade IX and by 19 points in Grade XI. Regardless of the statistical significance of these differences in raw scores, the fact of the matter is that boys do appear at least to hold their own with girls in vocabulary achievement at the high school level.

TABLE XXXVIII

SEX DIFFERENCES IN MEAN RAW SCORES FOR VOCABULARY TESTS

Population	No. Cases	Total Noun (Mean)	Total Verb (Mean)	Total Adjective (Mean)	Total Vocabulary (Mean)
Grade IX	192	95.53	78.29	43.66	217.14
Boys	95	102.02	77.44	42.54	221.54
Girls	97	89.17	78.7	44.764	212.82
Grade XI	210	117.59	99.07	62.46	278.20
Boys	96	124.43	102.87	62.916	288.28
Girls	114	111.83	95.86	62.076	269.72

Reliability.-- The reliability of each form of every test
was determined by the Spearman-Brown formula for estimating
reliability from two comparable halves of a test. Correlations
were computed from the odd-even scores on every fourth test
booklet selected at random for the total population taking a
single test form.

TABLE XXXIX

RELIABILITY COEFFICIENTS OF CORRELATION FOR
VOCABULARY TESTS OF TOTAL POPULATION
IN GRADE IX

| | Recall | | Recognition | |
	Uncorrected	Corrected	Uncorrected	Corrected
Nouns	.659	.795	.873	.934
Verbs	.807	.893	.874	.933
Adjectives	.740	.850	.845	.938

TABLE XL

RELIABILITY COEFFICIENTS OF CORRELATION FOR
VOCABULARY TESTS OF TOTAL POPULATION
IN GRADE XI

| | Recall | | Recognition | |
	Uncorrected	Corrected	Uncorrected	Corrected
Nouns	.607	.7403	.876	.938
Verbs	.585	.738	.815	.898
Adjectives	.685	.813	.873	.932

The high reliability coefficients are to be expected in
view of the length of the tests--115 items for each form of
each test. Since only about 12 of the 346 items on recall
form had alternative answers, it is not surprising that relia-
bility coefficients for recall form range from .73 to .89 even
though the limited achievement on recall form sharply reduces

test length below that on recognition form.

Validity.-- Both the recall and recognition test forms of
this study are essentially vocabulary tests developed from ac-
curate dictionary definitions but simplified in expression and
applied in concrete examples in order to maintain a reading
and concept difficulty at approximately sixth grade level of
achievement. Therefore, since the testing instruments are
primarily vocabulary tests in which each item is equated ac-
cording to form, style of writing and purpose, the separate
tests may be correlated with each other. Coefficients of cor-
relation between the total raw scores for recall and recognition
forms stand at .60 for Grade IX and .62 for Grade XI but, be-
tween the separate tests, correlations range from .53 to .75
for recall form and from .63 to .79 for recognition form. Al-
though these correlations are not extremely high for the popu-
lation of each grade, they are positive and high enough to be
interpreted as indicating some validity for the vocabulary
tests used in this study.

Summary.-- From the statistical data prepared upon the
material of the vocabulary experiment for this study, the fol-
lowing facts are evident.

1. Critical ratios for the difference in mean raw scores
of recall and recognition test forms are extremely high.
Therefore, the difference in achievement on recall and recog-
nition test forms is statistically significant.

2. The coefficient of correlation between total raw scores for recall and recognition test forms is only moderately high--.60 for total population. For the brightest group of population, correlation between recall and recognition techniques is .61 for Grade IX and .52 for Grade XI. For the group with lowest mental ages the correlation between recall and recognition is .63 for Grade IX and .32 for Grade XI.

3. Correlation between achievement on the recall test form and mental age (Total Mental Factors for California Short-Form Test of Mental Maturity) is only moderately high--.48 for Grade IX and .58 for Grade XI.

4. Correlation between achievement on recognition test form and mental age (Total Mental Factors for California Short-Form Test of Mental Maturity) is only moderately high--.47 for Grade IX and .52 for Grade XI.

5. Critical ratios for the differences in mean raw scores on the recall form of the separate tests (nouns, verbs, adjectives) are high and statistically significant. For the recognition form of the separate tests, critical ratios are high and statistically significant for only nouns and adjectives, and verbs and adjectives.

6. Correlations between the recall form of the separate tests range from .53 to .75. Correlations between the recognition form of the separate tests range from .63 to .79.

7. Correlations between the total raw scores (recall and recognition combined) for the separate tests and mental age (Total Mental Factors for <u>California</u> <u>Short-Form</u> <u>Test</u> <u>of</u> <u>Mental</u> <u>Maturity</u>) range from .43 to .58.

CHAPTER VI

SUMMARY AND CONCLUSIONS

<u>Review of experimental study</u>.-- The purpose of this study
has been to compare the ability to recall and write exact words
with the ability to recognize and associate precise meaning
with exact words of synonym relationship. To this end, separate
tests of 115 items each have been constructed for nouns, verbs,
and adjectives. Each test has been prepared in two forms with
identical items. The recall-completion test form was designed
to measure facility in summoning words from memory for writing
and speaking. The recognition-multiple choice test form was
designed to measure the ability to recognize and associate
precise meaning with words which are read or heard. The tests
have been administered to one hundred ninety-two students in
Grade IX and two hundred ten students in Grade XI. Considera-
tion of test results has been limited to those factors which
contribute to a status study. Coefficients of correlation
and critical ratios have been computed to determine the degree
of relationship between factors or the statistical significance
of differences in achievement for test forms and separate
tests.

Conclusions.-- Test data have been analyzed and the following conclusions have been drawn.

I. Comparison of recall and recognition test forms

  A. Achievement in raw scores

    1. Total vocabulary score (combined nouns, verbs, adjectives)

      a. The average high school student of Grades IX and XI was able to recall and write only 45 per cent of the words he was able to recognize and associate correct meaning with.

      b. Bright students of experimental population were able to recall and write, on the average, approximately 52 per cent of the words which they were able to recognize.

      c. Dull students were able to recall and write, on the average, approximately 40 per cent of the words which they were able to recognize.

    2. Separate tests

    The average high school student of Grades IX and XI was able to recall and write approximately

      60 per cent of the noun words which he was able to recognize

      42 per cent of the verb words which he was able to recognize

      32 per cent of the adjective words which he was able to recognize

B. Correlations

   1. The coefficients of correlation between achievement on

      recall and recognition test forms was positive but only

      moderately high. Therefore, it is considered that

      a. The two vocabulary test forms have only a limited

         number of factors in common.

      b. Achievement on either test form cannot be used to

         predict achievement on the other with any degree

         of certainty.

      c. The correlation between achievement on recall and

         recognition test forms is no higher for the bright

         students than it is for the total population.

   2. The correlation between recall or recognition test form

      and mental age was only moderately high, and the recog-

      nition test form correlated as well with mental age

      as the recall form did.

II. Comparison of achievement on separate tests

  A. Achievement in raw scores

   1. The highest raw scores occurred for nouns and the

      lowest for adjectives.

   2. The mean raw score for nouns was 3 times greater than

      the mean raw score for adjectives on both recall and

      recognition test forms.

   3. The mean raw score for verbs was 2 times greater than

      the mean raw score for adjectives on both recall and

recognition test forms.

4. The mean raw score for nouns was 1.5 times greater than for verbs on the recall test form, but, on the recognition test form, the difference in raw scores for nouns and verbs was negligible.

B. Correlations

1. Separate tests and mental age

The correlation between the separate tests and mental age was approximately the same as for test forms or a single test form and mental age. The highest correlation of .43 occurred for nouns and the lowest of .43 occurred for adjectives.

2. Among separate tests

The correlation between the separate tests ran some higher than the correlations between the test forms or between either test form and mental age. The highest correlation of .79 occurred for nouns and adjectives--recognition form. The lowest correlation of .53 occurred for verbs and adjectives--recall form. Correlations were consistently higher for the recognition form of the separate tests than for the recall form.

III. Sex differences in vocabulary scores

There were slight differences in mean raw scores for boys and girls. Those differences were consistently in favor of the boys.

IV. Grade differences in vocabulary scores

Mean raw scores for both forms of each test run appreciably higher for Grade XI than for Grade IX.

V. Test reliability

Recall and recognition test forms with identical phrase definitions for test items, as used in this study, are reliable measures of precise knowledge of word meaning for nouns, verbs, adjectives.

Summary.--

1. Vocabulary scores vary according to test form or mental and language activity, part of speech or syntactic function of words, and grade level in school.

2. Recall-completion and recognition-multiple choice techniques for testing word meaning appear to have only a limited number of factors in common.

3. Coefficients of correlation for recognition-multiple choice test form and mental age are approximately the same as the coefficients of correlation for recall-completion test form and mental age.

Further research.-- Suggestions for further research might include

1. Repeating the experiment on a larger, more diverse high school population after the vocabulary tests of this study have been revised in accordance with the findings of an item analysis.

2. Repeating the experiment of this study on a typical population in Grades IV to IX in order to determine the value of recall and recognition techniques and the significance of parts of speech at the lower grade levels of achievement.

3. Investigating more fully the specific factors involved in handling nouns, verbs, adjectives per se.

4. Preparing vocabulary testing instruments for each of the techniques listed in Chapter III and conducting experiments in order to determine their effectiveness as testing techniques for Grades IV through XII.

5. Investigating sex differences in vocabulary achievement for Grades IX through XII when mental age is equated.

6. Investigating the degree of correlation between achievement on standardized reading tests and achievement on the vocabulary tests of this experiment for Grades IV through XII.

7. Investigating the sex differences in achievement on the language and non language sections of the California Short-Form Test of Mental Maturity (Advanced Form).

8. Developing workbook pages with the vocabulary techniques listed in Chapter III and conducting an experiment to determine
   a. The value of each technique as a teaching device.
   b. The order of difficulty for the techniques.

    c. The amount of transfer from recognition to recall technique in vocabulary study.

9. Making an item analysis of all items on both the recall and recognition forms to determine difficulty and validity of test items.

BIBLIOGRAPHY

Andrews, Dorothy M. and Bird, Charles "A Comparison of Two New-Type Questions: Recall and Recognition" The Journal of Educational Psychology 29:175-93; March 1938

Anderson, Howard R. "A Necessary Precaution in Diagnostic Testing" The School Review 47:515-26; September 1939

Babbit, E. H. "A Vocabulary Test" Popular Science Monthly 70:378; April 1907

Betts, E. A. Foundations of Reading Instruction Cincinnati: American Book Company, 1946

Bird, Charles and Andrews, Dorothy M. "The Comparative Validity of New-Type Questions" The Journal of Educational Psychology 28:241-58; April 1937

Bodmer, Frederick The Loom of Language New York: W. W. Norton and Company, 1944

Brown, R. W. "The Size of the Working Vocabulary" Nation 93:11; July 6, 1911

Brownell, William A. "Some Neglected Criteria for Evaluating Classroom Tests" Appraising the Elementary-School Program Sixteenth Yearbook The National Elementary Principal, Bulletin of the Department of Elementary School Principals 16,6:485-92; July 1937 Washington, D.C.: The National Education Association

Burkart, Kathryn Harriett "An Analysis of Reading Abilities" Journal of Educational Research 38:430-9; February 1945

Butler, Huldah Anne "Finding Word Meaning from Context in Grades Five and Six" Unpublished Master's Thesis Boston: Boston University School of Education, 1943

Chase, Stuart The Tyranny of Words New York: Harcourt, Brace and Company, 1938

Clough, Vita S. "Analysis of Mental Imagery in Children's Silent Reading" Unpublished Master's Thesis Boston: Boston University School of Education, 1943

Courtney, Douglas; Bucknam, Margaret E.; Durrell, Donald "Multiple Choice Recall Versus Oral and Written Recall" Journal of Educational Research 36:458-61; February 1946

Cronback, Lee J. "Analysis of Techniques for Diagnostic Vocabulary Testing" Journal of Educational Research 36:206-17; November 1942

_____. "Experimental Comparison of Multiple True-False Tests and Multiple-Choice Tests" Journal of Educational Psychology 32:533-43; October 1941

_____. "Measuring Knowledge of Precise Word Meaning" Journal of Educational Research 36:528-34; March 1943

_____. "Note on the Multiple True-False Test Exercise" Journal of Educational Psychology 30:628-631; November 1939

_____. "On Estimate of Test Reliability" Journal of Educational Psychology 34:485-94; November 1943

_____. "Response Set and Test Reliability" Educational and Psychological Measurement 6 (No. 4):475-94; Winter 1946

Crosscup, Richard B. "A Survey and Analysis of Methods and Techniques for Fostering Growth of Meaning Vocabulary" Unpublished Master's Thesis Boston: Boston University School of Education, 1940

Cuff, Noel B. "Vocabulary Tests" The Journal of Educational Psychology 21:212-220; March 1930

Dale, Edgar "Difficulties in Vocabulary Research" Educational Research Bulletin 10:119-122; March 4, 1941

Devlin, Joseph A Dictionary of Synonyms and Antonyms Cleveland, Ohio: The World Publishing Company, 1938

Dewey, John How We Think Boston: D. C. Heath and Company, 1910

Dolch, Edward William Reading and Word Meanings Boston: Ginn and Company, 1927

_____ "Testing Word Difficulty" Journal of Educational Research 26:22-7; September 1932

Doran, E. W. "A Study of Vocabularies" Psychological Seminary 14:401-38; December 1907

Durrell, Donald D. "Language and the Higher Mental Processes" Review of Educational Research 13:110-14; April 1943

Durrell, Donald D. and Sullivan, Helen Blair "Vocabulary
    Instruction in the Intermediate Grades with Word Lists
    for Grades Four, Five, and Six" The Elementary English
    Review 15:138-45, 185-93; April, May 1938

Edgerton, Ronald B. "How Difficult Are Children's Encyclopedi-
    as?" The Elementary School Journal 45:379-85, 455-64;
    March, April 1945

Flesch, Rudolph Marks of a Readable Style Contributions to
    Education No. 897 New York: Teachers College, Columbia
    University, 1943

_____ The Art of Plain Talk New York: Harper and
    Brothers, 1946

Findley, Warren George Specialization of Verbal Facility at
    the College Entrance Level Contributions to Education
    No. 567 New York: Teachers College, Columbia University,
    1933

Funk, Wilfred The Way to Vocabulary Power and Culture New
    York: Wilfred Funk, Inc., 1946

Funk, Wilfred and Lewis, Norman 30 Days to a More Powerful
    Vocabulary New York: Wilfred Funk, Inc., 1942

Garrison, K. C. and Thomas, Mabel "A Study of Some Literature
    Appreciation Abilities as They Relate to Certain Vocabu-
    lary Abilities" Journal of Educational Research 22:
    396-399; December 1930

Garrison, K. C. "Relationship between Three Different Vocabu-
    lary Abilities" Journal of Educational Research 21:43-
    45; January 1930

Gates, Arthur I.; Jersild, Arthur T.; McConnell, R. R.;
    Challman, Robert C. Educational Psychology New York:
    The Macmillan Company, 1942

Glicksberg, Charles I. "Dynamics of Vocabulary Building"
    English Journal 29:197-206; March 1940

_____ "Semantics in the Classroom" English
    Journal 33:408-14; October 1944

_____ "Semantics for the Teacher of Science
    and Mathematics" Science Education 25:396-400; December
    1941

Goodenough, Florence L. "Semantic Choice and Personality Structure" Science 104:451-6; November 15, 1946

Gray, William S. Improving Reading in Content Fields Supplementary Educational Monographs No. 62 Chicago: University of Chicago Press, January 1947

Gray, William S. and Holmes, Eleanor The Development of Meaning Vocabularies in Reading, an Experimental Study Publications of the Laboratory Schools of the University of Chicago, No. 6 Chicago: The University of Chicago Press, February 1938

Gray, William S. (chairman) The Teaching of Reading--A Second Report Thirty-sixth Yearbook National Society for the Study of Education Part I Bloomington, Illinois: Public School Publishing Company, 1937

Gray, William S. and Leary, Bernice E. What Makes A Book Readable Chicago: The University of Chicago Press, 1935

Guilford, J. P. "New Standards for Test Evaluation" Educational and Psychological Measurement 6 (No. 4):427-438; Winter 1946

Hartman, George W. "A Critique of the Common Method of Estimating Vocabulary Size, Together with Some Data on the Absolute Word Knowledge of Educated Adults" The Journal of Educational Psychology 32:351-58; May 1941

Hayakawa, S. I. Language in Action New York: Harcourt, Brace and Company, 1941

Henley, Ruth Evelyn "Comprehension Difficulties of Various Sentence Structures" Unpublished Master's Thesis Boston: Boston University School of Education, 1938

Hill, Robert H. (compiler) Jarrold's Dictionary of Difficult Words New York: Howell, Soskin, Publishers, 1946

Horn, Ernest A Basic Writing Vocabulary University of Iowa Monographs in Education Iowa City: The College of Education, University of Iowa, 1936

_____ "Language and Meaning" The Psychology of Learning Forty-first Yearbook National Society for the Study of Education Part II Bloomington, Illinois: Public School Publishing Company, 1942

Jersild, Arthur T. et al Child Development and the Curriculum
     New York: Teachers College, Columbia University, 1946

Jersild, Arthur T. Child Psychology New York: Prentice-Hall,
     Inc., 1940

Judd, C. H. Educational Psychology Boston: Houghton Mifflin
     Company, 1939

Kelley, Victor H. An Experimental Study of Certain Techniques
     for Testing Word Meaning University of Iowa Studies in
     Education IX No. 1 Iowa City: University of Iowa, 1934

_____ "Experiment with Multiple Choice Vocabulary
     Tests Constructed by Two Different Procedures" Journal
     of Experimental Education 5:248-50; December 1933

_____ "Techniques for Testing Word Meaning Know-
     ledge." Elementary English Review 9:102-105; April 1932

Kennon, Laura Hall Vere Tests of Literary Vocabulary for
     Teachers of English Contributions to Education No. 223
     New York: Teachers College, Columbia University, 1926

Kibbe, Delia E. "Enlarging and Enriching Meaning Vocabulary"
     Recent Trends in Reading Supplementary Education Mono-
     graph William S. Gray (editor) Chicago: University of
     Chicago Press, 1939

Kirkpatrick, E. A. "A Vocabulary Test" Popular Science Monthly
     70:157-164; February 1907

Koopman, Margaret O. Test, Social Science Concepts, Form A
     Chicago: Progressive Education Association, 1940

Lawrence, Armon Jay A Vocabulary of Business and Economic
     Terms of Popular Usage Bulletin of the Bureau of School
     Service College of Education, University of Kentucky;
     March 1945

Lorge, Irving "Word Lists as Background for Communication"
     Teachers College Record 45:543-52; May 1944 New York:
     Teachers College, Columbia University, 1944

_____ "Predicting Readability" Teachers College
     Record 45:404-19; March 1944 New York: Teachers College,
     Columbia University

Lovell, George D. "Interrelations of Vocabulary Skills: Commonest Versus Multiple Meanings" Journal of Educational Psychology 32:67-72; January 1941

Mawson, C. O. Sylvester Roget's Thesaurus of the English Language in Dictionary Form Garden City, New York: Garden City Publishing Company, Inc., 1936

McCullough, Constance M. "Learning to Use Context Clues" The Elementary English Review 20:140-3; April 1943

McKee, Paul "Word Lists and Vocabulary Difficulty in Reading Matter" The Elementary English Review 14:241-5; November 1937

Morgan, C. L. and Bonham, D. N. "Difficulty of the Vocabulary Learning as Affected by Parts of Speech" Journal of Educational Psychology 35:369-77; September 1944

Morgan, John Jacob Brooke Child Psychology (Revised edition) New York: Farrar and Rinehart, 1942

Morgan, John J. B. Psychology New York: Farrar and Rinehart, Inc., 1946

Morris, Charles Signs, Language and Behavior New York: Prentice-Hall, Inc., 1946

Neher, H. L. "Measuring the Vocabulary of High School Pupils" School and Society 8:355-58; September 1918

Ogden, C. K. and Richards, I. A. The Meaning of Meaning New York: Harcourt, Brace and Company, Inc., 1936

Pillsbury, Walter B. and Meader, Clarence L. The Psychology of Language New York: D. Appleton and Company, 1928

Remmer, H. H. and Ewart, Edwin "Reliability of Multiple-Choice Measuring Instruments as a Function of the Spearman-Brown Prophecy Formula, III" The Journal of Educational Psychology 32:61-66; January 1941

Richards, I. A. Basic Rules of Reason London: Richards, Kegan Paul, Trench, Trubner and Company, Ltd. Broadway House, Carter Lane, E. C., 1933

_____ Interpretation in Teaching New York: Harcourt, Brace and Company, 1938

Richards, I. A. "What Is Involved in the Interpretation of Meaning" Reading and Pupil Development Supplementary Educational Monographs No. 51 Chicago: University of Chicago Press, 1940

Ross, C. C. Measurement in Today's Schools New York: Prentice-Hall, Inc., 1944

Schwesinger, Gladys C. The Social-Ethical Significance of Vocabulary Teachers College Contributions to Education No. 211 New York: Teachers College, Columbia University, 1926

Seago, D. W. An Analysis of the Language Factors in Intelligence Tests Mental Measurements Monograph No. 1 Baltimore: Wilkins and Wilkins, 1925

Seashore, Robert T. and Eckerson, Lois D. "The Measurement of Individual Differences in General English Vocabularies" Journal of Educational Psychology 31:14-38; January 1940

Seegers, J. Conrad "Recent Research in Vocabulary Development" Elementary English Review 23:61-8; February 1946

_____ Vocabulary Problems in the Elementary School Seventh Annual Bulletin of the National Conference on Research in English Chicago: Scott, Foresman and Company, 1939

Serenius, C. A. "An Analytical and Empirical Study of Certain Techniques Employed in Vocabulary Testing" Unpublished Doctor's Dissertation Iowa City: University of Iowa, 1931

Sims, Verner Martin "The Reliability and Validity of Four Types of Vocabulary Tests" Journal of Educational Research 20:91-96; September 1929

Smith, Mary Katherine "Measurement of the Size of General English Vocabulary through the Elementary Grades and High School" Genetic Psychology Monograph 24:313-345; 1941

Spearman, C. "Thurstone's Work Re-worked" The Journal of Educational Psychology 30:1-16; January 1939

Stalnaker, J. M. "Recognition and Recall on a Vocabulary Test" Pedagogical Seminary 46:463-64; June 1935

_____ "Chance vs Selected Distractors in a Vocabulary Test" The Journal of Educational Psychology 26:161-168; March 1935

Starch, D. Educational Measurements New York: The Macmillan
    Company, 1916

Sturtevant, Edgar H. An Introduction to Linguistic Science
    New Haven: Yale University Press, 1947

Sullivan, Helen Blair "A New Means of Appraising the Qualifica-
    tions of Prospective Teachers" Unpublished Doctor's
    Dissertation Cambridge: Harvard University Graduate School
    of Education, 1944

Terman, L. M. The Measurement of Intelligence Boston: Houghton
    Mifflin Company, 1937

_____ "The Vocabulary Test as a Measure of Intelli-
    gence" The Journal of Educational Psychology 9:452-66;
    October 1918

Thorndike, E. L. Human Learning New York: The Century Com-
    pany, 1931

_____ Teaching the Meaning of Words Chicago: Scott
    Foresman, 1934

_____ The Teachers' Word Book New York: Teachers
    College, Columbia University, 1921

_____ "Word Knowledge in the Elementary School"
    Teachers College Record 22:334-70; October 1921 New York:
    Teachers College, Columbia University

Thorndike, Edward L. and Lorge, Irving The Teacher's Word Book
    of 30,000 Words New York: Teachers College, Columbia
    University, 1944

Thorndike, E. L. and Symonds, Percival M. "Difficulty, Relia-
    bility, and Grade Achievements in a Test of English Vocabu-
    lary" Teachers College Record 24:438-45; November 1923
    New York: Teachers College, Columbia University

Thurstone, L. L. Primary Mental Abilities Psychometric Mono-
    graph No. 1 Chicago: University of Chicago Press, 1938

Tilley, H. C. "A Technique for Measuring the Relative Diffi-
    culty of Word Meanings among Elementary School Children"
    Journal of Experimental Education 5:61-64; September 1936

Tinker, Miles A. "Speed and Quality of Associations as a
    Measure of Vocabulary Knowledge" The Journal of Educa-
    tional Psychology 31:575-82; November 1940

Trabue, M. R. (chairman) Teaching Language in the Elementary
     School Forty-third Yearbook Part III National Society
     for the Study of Education Chicago: Department of Educa-
     tion, University of Chicago, 1944

Traxler, Arthur E. "Improvement in Vocabulary through Drill"
     English Journal 27:491-494; June 1938

Varney, Elinor C. "An Experiment to Evaluate Some Techniques
     for Measuring the Knowledge of Word Meanings in the Fourth,
     Fifth and Sixth Grades" Unpublished Master's Thesis
     Boston: Boston University School of Education, 1945

Walpole, Hugh "Problems and Procedures in Promoting Growth in
     Interpretation of Meaning in the Middle Grades" Reading
     and Pupil Development Supplementary Educational Monographs
     No. 51 Chicago: University of Chicago Press, 1940

_____ Semantics; The Nature of Words and Their Mean-
     ings New York: W. W. Norton and Company, Inc., 1941

Walpole, Ellen "Interpretation of Meaning in the Primary
     Grades" Reading and Pupil Development Supplementary
     Educational Monographs No. 51 Chicago: University of
     Chicago Press, 1940

Watts, A. F. The Language and Mental Development of Children
     Boston: D. C. Heath and Company, 1944

Webster's Collegiate Dictionary (Fifth edition) Springfield,
     Massachusetts: G. & C. Merriam Company, 1936

Webster's Dictionary of Synonyms Springfield, Massachusetts:
     G. & C. Merriam Company, 1942

Webster's New International Dictionary Springfield, Massa-
     chusetts: G. & C. Merriam Company, 1934

Whipple, G. M. "Vocabulary and Word Building Tests" Psycho-
     logical Review 15:94-105; March 1909

Wilking, Steven Vincent "The Construction and Evaluation of
     a Measure of Reading Vocabulary" Unpublished Master's
     Thesis Boston: Boston University School of Education, 1940

Zahner, Louis C. (chairman) "Language in General Education"
     A Report of the Committee on the Function of English in
     General Education for the Commission on Secondary Schools
     Curriculum Progressive Education Association New York:
     D. Appleton-Century Company, Inc., 1940

Zipf, George Kingsley The Psycho-Biology of Language Boston:
     Houghton Mifflin Company, 1935

APPENDIX

APPENDIX

Name.............................Sex......Age......Date of Birth.................

School.............................Year in School.......Year in English.............

Average Grade in English or Literature and Reading.........Time to take test............

How well do you read? Fair........Good........Excellent........

VOCABULARY TEST--NOUN (Recall)

This is a test to find out how well you recall or remember the exact word suggested by a phrase.

Read the word at the top of each section. Then read each phrase and try to think of a single word which expresses the same or nearly the same meaning as the phrase. The single word will be a synonym of the top word of a section. Write your work in the blank after the correct phrase. Spell it as well as you can but write plainly so that it can be read easily.

The following sample is marked correctly according to Webster's International and Synonym dictionaries. Study each item and be sure you understand what to do.

I. WORKSHOP

1. The establishment or working room of a painter, sculptor or photographer   studio
2. The place where scientists carry out experiments, tests, analyses   laboratory
3. A building and machinery for grinding grain or sawing lumber   mill
4. The place in a harbor where boats stop to load and unload   wharf
5. A building with equipment for manufacturing textiles   factory
6. The building or workshop where metals are cast into form   foundry

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Answers must be single words. Answers must be different from any word used in the phrases of a section. Every answer will be different because every phrase was written to describe or explain a different word. All answers will be common nouns or words. Do not write proper names or slang words.

Work as fast as you can. Do first the items which are easy for you. Write as plainly as possible. Spell according to the way a word sounds if you have heard it pronounced. Credit will be given for any spelling which indicates that you have the correct word in mind.

Be sure to take plenty of time to think about each phrase. It may help you to list quickly all the different synonyms you can recall for the top word of a section.

If you wish to change an answer, cross it out and write a second answer.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I. YOUNG

1. A hen or female chicken that is less than a year old _____
2. A very young frog with its gills and tail _____
3. The young of a horse or zebra _____
4. The young of a bear or lion _____
5. The wormlike form of some insects hatched from eggs, as flies and moths are _____
6. The young of a cow or an elephant or a buffalo _____
7. The young of a cat or a tiger _____
8. The young of a goat _____
9. A very small and usually young fish, especially of the trout family _____
10. The young of a deer (doe) especially when only a few weeks old _____
11. An infant or a very young child of American Indian parents _____
12. A young bird without the necessary feathers for flying _____

II. GROUP

13. A large group of dogs or wolves that run and hunt together _____
14. A large group of cattle, reindeer or horses that pasture together _____
15. A bunch of sheep or geese or chickens _____
16. A group of pretty girls, or a group of quail _____
17. A throng of herring or sardines swimming or feeding together _____
18. A throng of bees or other insects, especially when in motion in the air _____
19. A loosely organized clan or tribal group of Mongolian nomads _____
20. A group of cattle, horses or mules either being driven or collected for driving _____
21. An armed group of men led by an officer of the law in search of an escaped convict _____

III. BOOK

22. The text and words of a musical composition like an opera or operetta _____
23. The small handbook with instructions for doing something or using something _____
24. A collection of printed material or part of a written work bound together in a set _____
25. A publication appearing at regular intervals during a year or month _____
26. A small paper-covered booklet of printed matter _____
27. A written record with regular entries of births, deaths, or names of voters _____
28. A collection of poems, epigrams or other beautiful passages from literature _____
29. A book with tables and many calendars with astronomical data and various statistics _____

IV. HAIR

30. The beard that grows on the sides and chin of a man's face   _____
31. The hair on a person's head that is worn or dressed high above the forehead   _____
32. The soft, fluffy growth of fuzz or feathers on people or birds   _____
33. The long heavy hair growing on top of the neck of a horse or lion   _____
34. The heavy hair or beard growing on a man's upper lip   _____
35. The short, stiff, coarse hair growing on the back of a pig   _____
36. The fringe of hair at the edge of the eyelid   _____
37. The short, thick hair, crisped and curled, on a sheep's pelt   _____

V. PART

38. A part cut from a geometric figure by a line or plane   _____
39. A broken or imperfect part of anything   _____
40. A section or part of anything given to a particular person as his share   _____
41. A piece or mass of coal or wood, indefinite or irregular in shape   _____
42. A very small, thin piece that is cut, chopped or broken off, as with wood or ice   _____
43. A short thick piece of something, as with irregular blocks of wood or ice   _____
44. A small detached or loose bit of something like paper or cloth   _____
45. A very, very small bit of something like cake or bread or crackers _____
46. A very minute bit of something like dust or rock   _____
47. A very small piece of something like sand, sugar or salt   _____

VI. END

48. The close or termination or the last section of a musical composition   _____
49. The end of a race or journey or one of the end markers for a football field   _____
50. The rear end of a vessel or a boat   _____
51. An armistice or brief quiet in a war when both sides agree to stop fighting   _____
52. The punctuation mark which indicates the end of a sentence   _____
53. The end of a division for a railroad line or for a bus system   _____
54. The date or set time on which a note, bond or mortgage becomes due _____
55. The date or the set time on which a law ceases to be in force   _____
56. The end of prison life for a convicted criminal when he is hanged or electrocuted   _____
57. The end of life for a king, a great leader or other famous person   _____
58. The event in a drama when calamity and misfortune lead to a disastrous conclusion   _____

VII. THIEF

59. One who illegally imports or exports goods without paying duties or customs ____
60. A bandit or lawless fellow living by plunder, usually in a group of outlaws ____
61. A robber on the high seas with an armed ship or vessel ____
62. One who takes and passes off as his own, the ideas or writings of another person ____
63. One who goes on to private land to kill game or to fish illegally ____
64. A thief who picks up goods for sale on counters in a store or market ____
65. One who tries to get money from noted people by threatening to expose their lives ____
66. One who cuts out or gathers up horses and cattle to keep or sell as his own ____
67. A person who passes for someone else--especially for a famous personage ____

VIII. ASSEMBLY or MEETING

68. Meeting of a small group of professional people who consult and exchange ideas or views

69. The group of officials elected to consult and advise the mayor of a city ____
70. The group of judges who administer justice in city or county government ____
71. A meeting of delegates for common purposes of a social or political organization ____
72. The organized group of appointed advisors to the president of the United States ____
73. The assembly of people gathered to see and hear an opera or a drama ____
74. An organized body of officials with power to make or amend laws for a state ____
75. An assembly of people who desire to worship God, usually in a church ____
76. An organized branch or local body of a lodge or fraternity ____
77. A meeting between an employer and applicant to gain information about each other ____

IX. LIGHT

78. The bright, dazzling, blinding light of sun on ice or other glassy surface ____
79. The first beams or streaks of light as the sun rises in the morning ____
80. A circle or crown of light around the head of a saint or idealized character ____
81. The high shine or luster of new paint or enamel or varnish ____
82. A sudden burst of light as from lightning or a discharged gun ____
83. The bright sparkling light given off by crystal beads or diamonds ____
84. The burning gas or vapor at the top of a candle or torch ____
85. The light and heat coming from a fire started in dry sticks ____
86. The small particle of fire given off when iron strikes flint ____

X. INCLOSURE

87. A pen or inclosure for holding or rounding up animals--horses and cattle ____
88. A small inclosure near stables at a race track where horses are exercised ____
89. Grassland or a lot with green feed for grazing and feeding stock of any kind ____
90. The inclosure maintained by the Humane Society for holding stray dogs and cats ____
91. An inclosure or pen for pigs or swine ____
92. The compartment of a stable or barn for one horse or one cow ____
93. A dam of stakes and brush set in a river or tidewater to catch fish ____
94. Wood, brick or stone work raised to make the four sides of a house or room ____
95. A deep, wide trench or ditch built around a castle for protection ____
96. A large cage or small enclosure for poultry or chickens ____
97. An inclosure or pen for sheep ____

XI. EVILDOER

98. Any cruel master, or king who exercises absolute power to oppress people brutally ____
99. Any man or human being that eats human flesh ____
100. Anyone who works to overthrow all present government and social order in the world ____
101. Anyone who deliberately and wilfully sets fires to destroy buildings ____
102. An evil mythical hag or crone who rides a broomstick ____
103. Any being or character who is diabolically wicked or especially mean and cruel ____
104. Greek mythical characters, half bird--half woman, who lured sailors to their death ____
105. An evil spirit with horns, usually depicted as dressed in red ____
106. Any person who violates his allegiance and betrays his country ____

XII. INSTRUMENT

107. An optical instrument to aid the eye in viewing stars and planets ____
108. An optical instrument with lenses that magnify very small objects ____
109. An instrument for measuring air pressure to determine changes in weather ____
110. An apparatus on railroad tracks that signals by changing lights, flags or arms ____
111. An instrument with magnetic needles used to find directions ____
112. An apparatus to register shocks and motions of earthquakes ____
113. An instrument for intensifying and transmitting sound in a radio station ____
114. An instrument for recording and reproducing sounds and words or songs and music ____
115. An instrument for measuring altitudes in surveying, astronomy or gunnery ____

Name...................................Sex......Age......Date of Birth...................

School...............................Year in School.......Year in English..............

Average Grade in English or Literature and Reading........Time to take test.............

How well do you read? Fair........Good........Excellent........

VOCABULARY TEST--VERB (Recall)

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Read the word at the top of each section. Then read each phrase and try to think of a single word which expresses the same or nearly the same meaning as the phrase. The single word will be a synonym of the top word for a section. Write your word in the blank after the correct phrase. Spell it as well as you can but write plainly.

The following sample is marked correctly according to Webster's International and Synonym dictionaries. Study each item and be sure you understand what to do.

I. PLACE

1. To place or put money in the bank to one's account	deposit
2. To lay away vegetables and other foods for winter use	store
3. To set a large machine in place and fix for service in a factory	install
4. To initiate and assign a man to a position in Christian ministry	ordain
5. To establish homes in a district as the pioneers did in new country	settle

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Answers must be single words that are different from any word used in a section. All answers will be different because every phrase was written to describe or explain a different word. Each answer will be the exact word to convey the most precise meaning of a phrase. Do not write slang words.

Work as fast as you can. Do first the exercises which are easy for you. Write as plainly as possible. Spell according to the way a word sounds if you have heard it pronounced. Credit will be given for any spelling which indicates that you have the correct word in mind.

Be sure to give yourself plenty of time to think about each phrase. It may help you to list quickly all the different synonyms you can recall for the top word of a section.

If you wish to change an answer, cross it out and write a second answer.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I. NEGLECT

1. To pass over or go by something without noticing or even seeing it ____
2. To neglect something because of failing to recall or remember it ____
3. To fail to find or receive or attain or hit something ____
4. To pass over and omit something because of chance or carelessness ____
5. To suspend a meeting for a brief period of time as Congress does each year ____
6. To put off action habitually and delay from day to day in a careless fashion ____
7. To delay or put off a scheduled meeting for a definite period of time ____
8. To snub, cut, or treat a person with disdain and indifference ____
9. To disregard wilfully and refuse to take notice of something ____
10. To slide or slip over a letter in a word or a note in music without due emphasis ____

II. TAKE

11. To take or pull the feathers from a fowl or bird ____
12. To take a person in one's arms and hug him ____
13. To grab and hold a player in football in order to stop him ____
14. To seize a person's property and force him to forfeit it to the state ____
15. To seize and hold by force of arms, a throne or a public office ____
16. To seize and take a person to jail because of misconduct or a crime ____
17. To grab or seize a purse suddenly and steal it away from its owner ____
18. To seize and hold (by the police) a car which was parked incorrectly ____
19. To kidnap a child or an important person and carry him off secretly ____
20. To defeat and take control of a country by force of arms ____
21. To agree to take and pay for a magazine for a given length of time ____

III. MOVE

22. To move in a fast, springing gait by leaps and bounds like a horse ____
23. To move in a quick, jogging pace like a horse or dog ____
24. To move in a quick, hurried way and run like a mouse ____
25. To run swiftly, especially when competing with other runners in a contest ____
26. To move suddenly and swiftly down upon prey as hawks do to pick up chickens ____
27. To move suddenly and jump or spring upon prey as cougars do upon cattle ____
28. To move back and forth or to fluctuate between opposing beliefs ____
29. To move by flapping the wings as a butterfly does in going from flower to flower ____
30. To pitch or throw one's self forward as in jumping or diving into deep water ____
31. To float or be carried along as if by a current of water or air ____

IV. DESTROY

32. To destroy the unity and organization of a defeated army and reduce it to nothing _____
33. To ruin or damage something by violence as a collision of two cars does _____
34. To put an end to something like a law, an institution or a custom _____
35. To ruin the mass or structure of something by tearing it apart and separating or breaking it into pieces _____
36. To strip something like a ship or locomotive of furniture and equipment _____
37. To destroy a building by tearing it down level with the ground _____
38. To break or crush something into small pieces or shatter it like a window or an egg _____
39. To destroy and eradicate mice, rats and other rodents _____
40. To quench and put out a fire or a light _____
41. To open holes in the deck and sides of a ship in order to sink and destroy it _____
42. To put down or crush a revolt by authority, force or pressure _____
43. To squander one's energy and money foolishly in search of pleasure _____

V. AID

44. To help by cooperating with another person, especially to support a superior in rank _____
45. To give money or to supply food for a common cause or charity _____
46. To provide a house with chairs, beds and other things for comfort and convenience _____
47. To allow a friend to use a tool on condition that it will be returned _____
48. To help a person by freeing him from worry or pain _____
49. To save, deliver or liberate a person from danger or injury _____
50. To provide recreation and amusement for guests _____
51. To favor a person by giving or doing something he particularly desires _____
52. To speed up a process like delivery of an important document _____
53. To help a store by trading there and supporting the policy of its owners _____

VI. ADD

54. To add or introduce a word in a sentence or a paragraph between other words _____
55. To join one thing to another, especially in adding conquered territory to a nation _____
56. To add something at the end of a book or paper previously organized _____
57. To strengthen something by adding extra thickness _____
58. To add a syllable at the beginning of a word _____
59. To increase, enlarge and expand, especially sound through a loudspeaker _____
60. To add the numbers in a column to find an amount _____

VII. COOK

61. To cook a large piece of meat or other food in an oven
62. To cook bread and pastry in an oven
63. Without grease, to cook meat or fish rapidly in order to seal juices on inside
64. To cook the entire carcass of a pig or chicken before an open flame
65. To burn meat or potatoes slightly while boiling then over a fire
66. To heat milk or soups just to the boiling point
67. To boil meat and onions, potatoes or other vegetables together to make a meal
68. To cut chicken or veal meat into small pieces and boil in a gravy

VIII. DECREASE

69. To shorten words like names of states by leaving out letters and using periods
70. In surgery, to cut off a leg or finger or arm of a person
71. To cut out dead branches from trees or shrubs in the spring
72. To shorten and condense a story or a dictionary
73. To grow dim or diminish gradually as the moon does after being full
74. To contract and become less in size as some cloth does when wet
75. To fail and draw to a close as the career of a great man appears to do
76. To become smaller and smaller in amount or size as a pile of sand will do
77. To decrease in value as an automobile does with age and hard service
78. To reduce or lessen a bill by a certain per cent if paid before a set date
79. To diminish and become less violent as a bad storm does near its finish
80. To cut down and reduce or diminish production in a factory

IX. COMBINE

81. To mix and make a union of at least two different things like mercury and silver
82. To reduce the purity of gold by mixing it with a less valuable metal
83. To unite or combine into one company as two steamship companies might do
84. To join as members of a business or commercial firm recognized by law
85. To blend or unite two or more things as if they were melted together
86. To take or suck up another substance as a blotter does water or ink
87. To glue, paste or fasten two things together so that they adhere closely
88. To join a lodge or other social organization for common fellowship

X. MAKE CLEAN or PURE

89. To free a doctor's instruments of all living germs or microbes _____
90. To heat milk to a certain temperature in order to kill most harmful germs _____
91. To use gases, smoke or vapors to free a room of insects or germs _____
92. To wash and treat the hair and scalp _____
93. To cause fresh air to circulate through a room _____
94. To wash clothes with soap and water in order to clean them _____
95. To clean a floor by using a stiff brush and water with strong soap _____
96. To cleanse and purify a person in religious rites at a church service _____

XI. OPEN

97. To cleave or divide a log or rail lengthwise with the grain _____
98. To make holes in paper, cloth or wood by boring, piercing or punching _____
99. To make a hole in a tire by piercing with a sharp tack or piece of glass _____
100. To introduce and admit a person into a lodge with an impressive ceremony _____
101. To make known and exhibit a treasure that had been concealed _____
102. To bring to light and disclose the faults or crimes of a government official _____
103. To introduce and induct a governor into his office with a formal ceremony _____
104. To pierce and cut open a boil or a vein _____

XII. PASS

105. To quit or leave or go forth from a place _____
106. To slip or pass away as time does _____
107. To disappear suddenly and completely from sight _____
108. To advance or continue on a trip, especially if interrupted _____
109. To pass or make a bill into a law as Congress does _____
110. To approve and confirm a treaty, contract, appointment, or constitution _____
111. To be better, greater or stronger than another person _____
112. To befall or take place as any event comes to pass or occurs _____
113. To pass through and pervade a loose substance as water does in sand _____
114. To pass or move around a course and return as blood does in the body _____
115. To cut across and divide by passing through, as streets and roads do _____
116. To move across or over a country in traveling _____

Name.......................................Sex......Age......Date of Birth....................

School...................................Year in School........Year in English..............

Average Grade in English or Literature and Reading..........Time to take test.............

How well do you read? Fair..........Good..........Excellent..........

VOCABULARY TEST--ADJECTIVES (Recall)

This is a test to find out how well you recall or remember the exact words suggested by a phrase.

Read the word at the top of each section. Then read each phrase and try to think of a single word to describe the person or thing referred to in the phrase. Your single word will be a synonym of the top word in a section. Write your word in the blank after the correct phrase. Spell it as well as you can but be sure to write plainly.

The following sample is marked correctly according to Webster's International and Synonym dictionaries. Study each item and be sure you understand what to do.

I. YELLOW

1. A person said to have a yellow streak down his backbone	cowardly
2. A picture frame covered with a coat of gold-colored paint	gilded
3. The pale, yellowish skin of a sickly person	sallow
4. Fair, flowing blond hair	flaxen
5. Yellowish-brown or fawn colored hair or beard	tawny

Answers must be single words. Answers must be different from any word used in the phrases of a section. Every answer will be different because every phrase was written about a different person or thing. Each answer will be the exact word to convey the most precise meaning of a phrase. Avoid slang or vulgar words.

Work as fast as you can. Do first the items which are easy for you. Write as plainly as possible. Spell according to the way a word sounds to you if you have heard it pronounced. Credit will be given for any spelling which indicates that you have the correct word in mind.

Be sure to take plenty of time to think about each phrase. It may help you to list quickly all the different synonyms you can recall for the top word of a section.

If you wish to change an answer, cross it out and write a second answer.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I.   VISIBLE

1. A hat or necktie that is noticeable because of bright color, size or shape _____
2. A fact or object that is plainly seen by the eye or readily understood _____
3. A prominent and important or significant fact, detail or feature of a situation _____
4. Something so evident that it attracts attention enough to be readily observed _____
5. Something that is evident to the senses as well as the mind _____
6. A very bad error or mistake that stands out boldly _____
7. A picture with objects that are clear and plain _____

II.   GREEN

8. A very young or new and untrained worker _____
9. The brilliant green color of a precious stone _____
10. A trusting person who is readily deceived or imposed upon _____
11. Vegetables or other foods which are not cooked _____
12. Naive people, unsophisticated in spite of their age and experience _____
13. The greenish-yellow color of a small oval-shaped fruit or the name of a tree _____
14. Delicate, weak young plants like very small lettuce with tiny leaves _____
15. Events taking place within the last few weeks or days _____

III.   HARD

16. The ice in a bucket where the water has completely frozen _____
17. Candy like taffy or caramel which has hardened too much to be pulled or worked _____
18. A metal band or bar that cannot be bent or twisted _____
19. Soldiers experienced in hard fighting at the front lines of battle _____
20. A problem that requires deep study and expert knowledge for its solution _____
21. A person whose mind is difficult if not impossible to change _____

IV.   IMAGINATIVE

22. A poem or story that is new, fresh and novel _____
23. Extremely fanciful plans formulated in dreams but almost impossible to realize _____
24. An invented or imaginary tale originally associated with religious rites _____
25. Schemes that are absurd, nonsensical and contrary to reason or nature _____
26. A story that is not real or genuine _____
27. A story or poem with quaint humor _____
28. Actions or deeds that are wild, excessive and unrestrained _____

V. OLD

29. A man who is a persistent smoker from long, continuous practice _____
30. Something that existed or happened long, long, long ago _____
31. A law or custom handed down from generation to generation _____
32. Something that existed or occurred before any written records were kept _____
33. Something that existed or happened during the Middle Ages _____
34. An old man who deserves great honor and respect
35. Old bread or cake that has lost its flavor _____
36. The foul, still water in a pond without an inlet or outlet _____

VI. POOR

37. A person who lacks the ability, strength or training to do a job well _____ !
38. Very old or well worn clothes that lack freshness and brightness of color _____
39. A person who is very simple and modest _____
40. Very poor land with little or no plant life or vegetation _____
41. A business or a person who is unable to pay honest debts _____
42. A needy person who lacks both property and means of making a living _____
43. A gaunt and haggard person who is wasted by disease or worry _____
44. Unnecessary information which does not apply directly to a case or problem _____

VII. VARIEGATED

45. Horses or fawns marked with small grayish-colored spots _____
46. A person's face covered with small brown spots, brought out by the sun _____
47. Horses marked with spots and patches of black and white as well as other colors _____
48. A trout or other fish marked with spots of different colors _____
49. Wood or grass with blotches of many different colors _____
50. Farming by which a number of different crops are raised during the year _____
51. A grayish or brownish-colored dog or cow with darker streaks and spots _____
52. Glass or soap bubbles with changing shades of color in the light _____

VIII. SAFE

53. A reliable person who proves trustworthy time after time _____
54. A fort or fortress that cannot be taken by an ordinary attack _____
55. A wise and judicious person in practical affairs _____
56. A simple, harmless, unoffending person who never accomplishes very much _____
57. A position or viewpoint that can be maintained and defended without embarrassment _____

IX. HEAVY

58. A very large, heavy, solidly built church or similar edifice _____
59. Bread or cake that is heavy because it did not rise or was half-baked _____
60. A tired, sleepy person with heavy eyelids _____
61. The tragic and disappointing part of a character in a play _____
62. A strong, loud but pleasing voice which can be heard easily _____
63. An awkward person who is heavy on his feet _____
64. Cloth woven of heavy, rough yarns or thread _____
65. A forest or grove with a heavy stand of trees and some underbrush _____
66. A person who is heavy-hearted and discouraged _____
67. The supply of food or clothes which have been furnished in great quantities _____

X. KIND

68. A person who is tender and sympathetic in his treatment of animals as well as people _____
69. A very patient person who endures injustice without seeking revenge _____
70. A warm sunny climate that is good for a person in poor health _____
71. A person who gives liberally to the poor and is slow to judge other people _____
72. A father who pampers his children and overlooks all their weaknesses _____
73. A person who strives to please other people by being extremely helpful _____
74. A person who is free from prejudice and liberal about various beliefs _____

XI. CUNNING

75. A foxy person who plans and plots events usually for selfish purposes _____
76. A shrewd, very tactful person who manages to get along well with other people _____
77. A clever, capable person who can work without attracting attention to himself _____
78. An insincere, tricky person who deliberately plans to mislead other people _____
79. An artful, crafty person who is a shrewd observer of practical affairs _____
80. A sly, treacherous person who plots to ensnare and entrap other people _____

XII. ACTIVE

81. A woman who is quick-witted, light-hearted and spirited _____
82. A person who assumes much authority and forces his services on people _____
83. A young, playful, romping puppy that runs and capers _____
84. A confident, forceful and persistent salesman who goes out to get the business _____
85. An extremely capable and very forceful person who influences many people _____
86. A person who works doggedly to complete a job he has begun _____

XIII. MILD

87. The climate in territory between the Arctic Circle and Mexico
88. A person who is easily moved by the suffering and hardships of others
89. A pleasant and cheerful or jovial person, pictured as a successful host
90. A patient, modest and extremely gentle person
91. A diet of soft, smooth and soothing foods
92. A mild, refreshing spring day, heavy with the scent of many flowers
93. A salve or cream that softens and soothes the skin
94. A very tractable employee who submits readily to the authority of superiors
95. Mild food or drinks which are so tasteless that they fail to satisfy the appetite
96. A well-ripened apple with soft pulp and sweet flavor
97. The quiet, peaceful undisturbed water of a lake on a calm day
98. A soft-spoken and affable person with urbanely persuasive manners

XIV. HEATED

99. The climate of countries lying on the equator
100. An appealing speech that shows deep and sincere feeling
101. A fire that burns and smokes without a flame
102. The heat on a damp and hot or sultry day when people breathe with difficulty
103. Water that feels lukewarm to one's hand
104. A devoted supporter of a political party who shows intense feeling for the cause
105. A wound or an eye that becomes irritated and infected
106. A rashly energetic person who dashes eagerly and headlong into action
107. An impatient person who is easily exasperated and vexed or angered

XV. ROUGH

108. The wild living of a group of gay and unrestrained people
109. The harsh, grating voice of a person with a cold
110. Rough, stormy, exceedingly unpleasant and unmerciful weather
111. An estimated answer that approaches the correct sum or total number
112. Packing paper folded so that it has alternate ridges and grooves
113. The troubled waters when a heavy storm whips an ocean or a lake
114. Rough ground that is difficult to walk across
115. A man with tousled hair, shaggy beard and baggy clothes

Name................................Sex......Age......Date of Birth......................

School..............................Year in School........Year in English................

Average Grade in English or Literature and Reading........Time to take test..............

How well do you read? Fair........Good........Excellent........

<p style="text-align:center">VOCABULARY TEST--NOUN (Recognition)</p>

This is a test to find out how well you choose the best word suggested by a phrase.

Read each phrase carefully. In the lettered words at the top of each section, find the exact word which is described by a phrase. Try to select the word which carries the most precise meaning. Write the letter indicating your word in the blank space following a phrase.

Study the following sample and be sure you understand what to do. Each item is correctly marked according to Webster's International and Synonym dictionaries.

I. WORKSHOP A. foundry B. laundry C. arsenal D. studio E. factory F. hive G. yard
            H. laboratory I. wharf J. crucible K. mill L. distillery M. theater

1. The establishment or working room of a painter, sculptor, photographer   D
2. The place where scientists carry out experiments, tests, analyses   H
3. A building and machinery for grinding grain or sawing lumber   K
4. The place in a harbor where boats stop to load and unload   I
5. A building with equipment for manufacturing textiles   E
6. The building or workshop where metals are cast into form   A

Every phrase has an exact word among the lettered words of a section. A lettered word can be used correctly for only one phrase of a section.

Work as fast as you can. Do first the exercises that are easy for you. If you can recognize a lettered word and remember any meaning for it, give yourself time to think about where to use it in a phrase.

Avoid wild guessing when you have no idea of the meaning of a word.

If you wish to change an answer, cross it out completely and write a second answer. Be sure your letters can be read easily. Write small letters if you prefer but be sure they are clear.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I. YOUNG A. farm B. fingerling C. scion D. cadet E. lamb F. gosling G. cherub
            H. whelp I. colt J. adolescent K. minor L. stripling M. fledgling N. papoose
            O. kitten P. kid Q. calf R. larva S. cub T. tadpole U. pullet V. seedling
            W. lass X. yearling

1. A hen or female chicken that is less than a year old _____
2. A very young frog with its gills and tail _____
3. The young of a horse or zebra _____
4. The young of a bear or lion _____
5. The wormlike form of some insects hatched from eggs, as flies and moths are _____
6. The young of a milk cow or an elephant or a buffalo _____
7. The young of a cat or a tiger _____
8. The young of a goat _____
9. A very small and usually young fish, especially of the trout family _____
10. The young of a deer (doe) especially when only a few weeks old _____
11. An infant or the very young child of American Indian parents _____
12. A very young bird without the necessary feathers for flying _____

II. GROUP A. aggregation B. drove C. horde D. swarm E. clan F. tribe G. school
            H. flock I. caste J. bevy K. pack L. posse M. flood N. clique O. cluster
            P. herd Q. bale R. set

13. A large group of dogs or wolves that run and hunt together _____
14. A large group of cattle, reindeer or horses that pasture together _____
15. A bunch of sheep or geese or chickens _____
16. A group of pretty girls, or a group of quail _____
17. A throng of herring or sardines swimming or feeding together _____
18. A throng of bees or other insects, especially when in motion in the air _____
19. A loosely organized clan or tribal group of Mongolian nomads _____
20. A group of cattle, horses or mules either being driven or collected for driving _____
21. An armed group of men led by an officer of the law in search of an escaped convict _____

III. BOOK A. register B. folio C. album D. almanac E. pamphlet F. anthology G. lexicon
            H. tract I. periodical J. quarto K. libretto L. concordance M. manual
            N. volume O. codex

22. The text and words of a musical composition like an opera or operetta _____
23. The small handbook with instructions for doing something or using something _____
24. A collection of printed material or part of a written work bound together in a set _____
25. A publication appearing at regular intervals during a year or month _____
26. A small paper-covered booklet of printed matter _____
27. A written record with regular entries of births, deaths, or names of voters _____
28. A collection of poems, epigrams or other beautiful passages from literature _____
29. A book with tables and many calendars with astronomical data and various statistics _____

IV. HAIR A. mane B. plume C. quill D. eyelash E. coat F. down G. pompadour H. wool
   I. ringlet J. feeler K. whiskers L. nap M. bristles N. tangle O. forelock
   P. mustache Q. crest

30. The beard that grows on the sides and chin of a man's face   ____
31. The hair on a person's head that is worn or dressed high above the forehead ____
32. The soft, fluffy growth of fuzz or feathers on people or birds   ____
33. The long heavy hair growing on top of the neck of a horse or lion   ____
34. The heavy hair or beard growing on a man's upper lip   ____
35. The short, stiff, coarse hair growing on the back of a pig   ____
36. The fringe of hair at the edge of the eyelid   ____
37. The short, thick hair, crisped and curled, on a sheep's pelt   ____

V. PART A. organ B. ramification C. chip D. segment E. wing F. chunk G. element
   H. portion I. bit J. lump K. quarter L. particle M. fragment N. crumb O. scrap
   P. faction Q. installment R. grain S. dole T. moiety

38. A part cut from a geometric figure by a line or plane   ____
39. A broken or imperfect part of anything   ____
40. A section or part of anything given to a particular person as his share ____
41. A piece or mass of coal or wood, indefinite or irregular in shape   ____
42. A very small thin piece that is cut, chopped or broken off, as with wood or ice ____
43. A short thick piece of something, as with irregular blocks of wood or ice ____
44. A small detached or loose bit of something like paper or cloth   ____
45. A very small bit of something like cake or bread or crackers   ____
46. A very minute bit of something like dust or rock   ____
47. A very small bit of something like sand, sugar or salt   ____

VI. END A. postern B. rump C. upshot D. maturity E. dissolution F. period G. motive
   H. terminal I. consequence J. stern K. expiration L. knockout M. execution
   N. demise O. truce P. consummation Q. climax R. catastrophe S. sunset
   T. finale U. peroration V. goal

48. The close or termination or last section of a musical composition   ____
49. The end of a race or journey, or one of the end markers for a football field ____
50. The rear end of a vessel or a boat   ____
51. An armistice or brief quiet in a war when both sides agree to stop fighting ____
52. The punctuation mark which indicates the end of a sentence   ____
53. The end of a division for a railroad line or for a bus system   ____
54. The date or set time on which a note, bond or mortgage becomes due   ____
55. The date or the set time on which a law ceases to be in force   ____
56. The end of prison life for a convicted criminal when he is hanged or electrocuted ____
57. The end of life for a king, a great leader or other famous person   ____
58. The event in a drama when calamity and misfortune lead to a disastrous conclusion ____

VII. THIEF A. poacher B. fence C. blackmailer D. rook E. brigand F. forger
G. smuggler H. hawk I. embezzler J. rustler K. welsher L. imposter
M. shoplifter N. swindler O. plagiarist P. kidnapper Q. rifler
R. burglar S. pirate T. defaulter

59. One who illegally imports or exports goods without paying duties ____
60. A bandit or lawless fellow living by plunder, usually in a group of outlaws ____
61. A robber on the high seas with an armed ship or vessel ____
62. One who takes and passes off as his own, the ideas or writings of another person ____
63. One who goes on to private land to kill game or to fish illegally ____
64. A thief who picks up goods for sale on counters in a store or market ____
65. One who tries to get money from noted people by threatening to expose their lives ____
66. One who cuts out or gathers up horses and cattle to keep or sell as his own ____
67. A person who passes for someone else--especially for a famous personage ____

VIII. ASSEMBLY A. mass B. congregation C. committee D. caucus E. council F. coterie
G. chapter H. interview I. troop J. conference K. institute
L. legislature M. audience N. reunion O. court P. symposium
Q. cabinet R. caravan S. convention T. meet

68. Meeting of a small group of professional people who consult and exchange ideas or views ____
69. The group of officials elected to consult and advise the mayor of a city ____
70. The group of judges who administer justice in city or county government ____
71. A meeting of delegates for common purposes of a social or political organization ____
72. The organized group of appointed advisors to the president of the United States ____
73. The assembly of people gathered to see and hear an opera or a drama ____
74. An organized body of officials with power to make or amend laws for a state ____
75. An assembly of people who desire to worship God, usually in a church ____
76. An organized branch or local body of a lodge or fraternity ____
77. A meeting between an employer and applicant to gain information about each other ____

IX. LIGHT A. lightning B. dawn C. refraction D. glare E. spark F. effulgence G. blaze
H. pane I. gloss J. viewpoint K. flash L. elucidation M. glitter
N. illumination O. flame P. splendor Q. halo R. scintillation S. complexion
T. luminosity

78. The bright, dazzling, blinding light of sun on ice or other glassy surface ____
79. The first beams or streaks of light as the sun rises in the morning ____
80. A circle or crown of light around the head of a saint or idealized character ____
81. The high shine, sheen or luster of new paint or enamel or varnish ____
82. A sudden burst of light as from lightning or a discharged gun ____
83. The bright sparkling light given off by crystal beads or diamonds ____
84. The burning gas or vapor at the top of a candle or torch ____
85. The light and heat coming from a fire started in dry sticks ____
86. The small particles or indications of fire given off when iron strikes flint ____

X. INCLOSURE   A. sty   B. stockade   C. hedge   D. pasture   E. paddock   F. boom   G. corral
               H. barrage   I. weir   J. paling   K. stall   L. moat   M. envelope   N. wall
               O. entanglement   P. coop   Q. levee   R. dike   S. pound   T. fold   U. cordon
               V. quadrangle

87. A pen or inclosure for holding or rounding up animals--horses and cattle _____
88. A small inclosure near stables at a race track where horses are exercised _____
89. Grassland or a lot with green feed for grazing and feeding stock of any kind _____
90. The inclosure maintained by the Humane Society for holding stray dogs and cats _____
91. An enclosure or pen for pigs or swine _____
92. The compartment of a stable or barn for one horse or one cow _____
93. A dam of stakes and brush set in a river or tidewater to catch fish _____
94. Wood, brick or stone work raised to make the four sides of a house or room _____
95. A deep, wide trench or ditch built around a castle for protection _____
96. A large cage or small enclosure for penning up poultry _____
97. An inclosure or pen for holding or rounding up sheep _____

XI. EVILDOER   A. savage   B. traitor   C. witch   D. desperado   E. harpie   F. gangster
               G. devil   H. iconoclast   I. tyrant   J. vandal   K. cannibal   L. miscreant
               M. arsonist   N. ogre   O. vulture   P. barbarian   Q. anarchist   R. racketeer
               S. fiend   T. snake   U. viper

98. Any cruel master, or king who exercises absolute power to oppress people _____
99. Any man or human being that eats human flesh _____
100. Anyone who works to overthrow all present government and social order in the world _____
101. Anyone who deliberately and wilfully sets fires to destroy buildings _____
102. An evil mythical hag or crone who rides a broomstick _____
103. Any being or character who is diabolically wicked, especially mean and cruel _____
104. Greek mythical characters, half bird--half woman, who lured sailors to their death _____
105. An evil spirit with horns, usually pictured as dressed in red _____
106. Any person who violates his allegiance and betrays his country _____

XII. INSTRUMENT   A. motor   B. microphone   C. outfit   D. compass   E. appliance   F. phonograph
                  G. gear   H. trigger   I. sextant   J. agent   K. telescope   L. implement
                  M. semaphore   N. contrivance   O. seismograph   P. harness   Q. utensil
                  R. microscope   S. barometer   T. quadrant   U. winch   V. accouterments

107. An optical instrument to aid the eye in viewing stars and planets _____
108. An optical instrument with lenses that magnify very small objects _____
109. An instrument for measuring air pressure to determine changes in weather _____
110. An apparatus on railroad tracks that signals by changing lights, flags or arms _____
111. An instrument with magnetic needles used to find directions _____
112. An apparatus to register shocks and motions of earthquakes _____
113. An instrument for intensifying and transmitting sound in a radio station _____
114. An instrument for recording and reproducing sounds and words or songs and music _____
115. An instrument for measuring altitudes in surveying, astronomy or gunnery _____

Name..................................Sex......Age......Date of Birth............................

School..................................Year in School.........Year in English..............

Average Grade in English or Literature and Reading.........Time to take test..............

How well do you read? Fair.......Good........Excellent........

VOCABULARY TEST--VERB (Recognition)

This is a test to find out how well you choose the best word suggested by a phrase.

Read each phrase carefully. In the lettered words at the top of each section, find the exact word which is described by a phrase. Try to select the word which carries the most precise meaning. Write the letter indicating your word in the blank space following a phrase.

Study the following sample and be sure you understand what to do. Each item is correctly marked according to Webster's International and Synonym dictionaries.

I. PLACE A. perceive B. install C. delegate D. identify E. store F. settle G. stick
              H. deposit I. appoint J. repose K. ordain L. lodge M. marshal

1. To place or put money in the bank to one's account	H
2. To lay away vegetables and other food for winter use	E
3. To set a large machine in place and fix it for service in a factory	B
4. To initiate and assign a man to a position in Christian ministry	K
5. To establish homes in a district as the pioneers did in new country	F

Every phrase has an exact word among the lettered words of a section. A lettered word can be used correctly for only one phrase of a section.

Work as fast as you can. Do first the exercises that are easy for you. If you can recognize a lettered word and remember any meaning for it, give yourself time to think about where to use it for a phrase.

Avoid wild guessing when you have no idea of the meaning of a word.

If you wish to change an answer, cross it out completely and write a second answer. Be sure your letters can be read easily. Write small letters if you prefer but be sure they are clear and distinct.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I. NEGLECT A. ignore B. procrastinate C. table D. encroach E. overlook F. slur
        G. leave H. elude I. slight J. evade K. disconcert L. postpone M. adjourn
        N. infringe O. forget P. skip Q. improvise R. dismiss S. rescind T. miss

1. To pass over or go by something without noticing or even seeing it   ____
2. To neglect something because of failing to recall or remember it   ____
3. To fail to find or receive or attain or hit something   ____
4. To pass over and omit something because of chance or carelessness   ____
5. To suspend a meeting for a brief period of time as Congress does each year   ____
6. To put off action habitually and delay from day to day in a careless fashion   ____
7. To delay or put off a scheduled meeting for a definite period of time   ____
8. To snub, cut, or treat a person with disdain and indifference   ____
9. To disregard wilfully and refuse to take notice of something   ____
10. To slide or slip over a letter in a word or a note in music without due emphasis   ____

II. TAKE A. abduct B. impound C. purchase D. pluck E. embrace F. adopt G. deduce
        H. usurp I. hire J. confiscate K. subscribe L. conquer M. snatch N. arrest
        O. tackle P. allure Q. pillage R. engross S. immerse T. monopolize
        U. surmount V. appropriate W. reap

11. To take or pull the feathers from a fowl or a bird   ____
12. To take a person in one's arms and hug him   ____
13. To grab and hold a player in football in order to stop him   ____
14. To seize a person's property and force him to forfeit it to the state   ____
15. To seize and hold by force of arms, a throne or a public office   ____
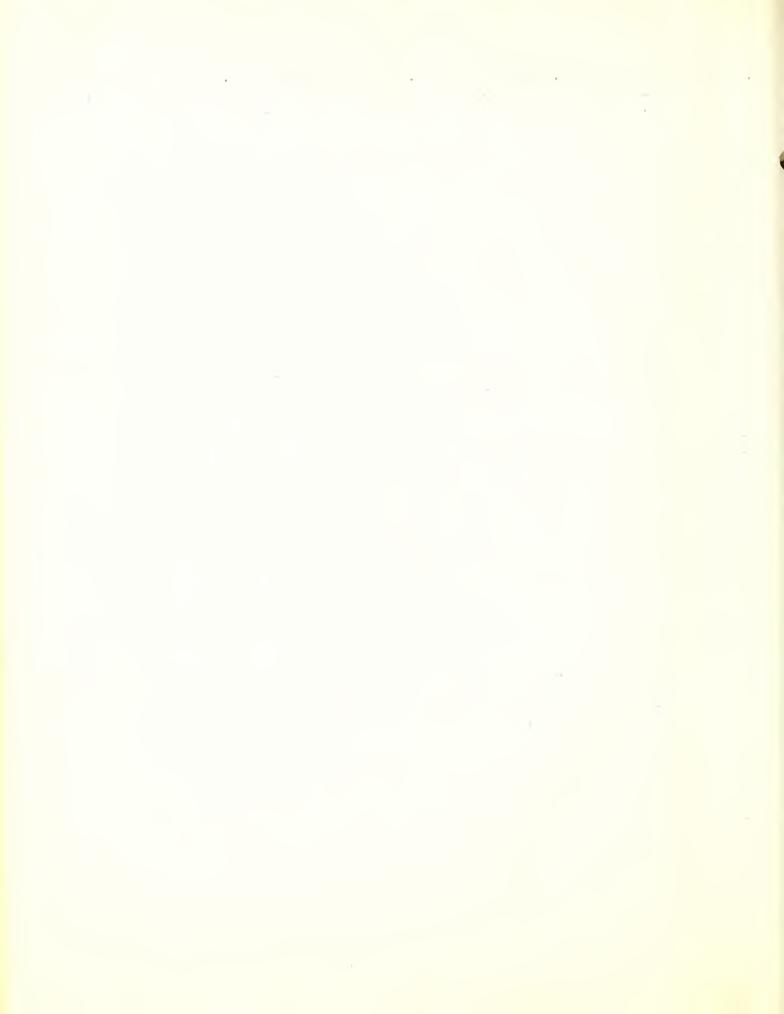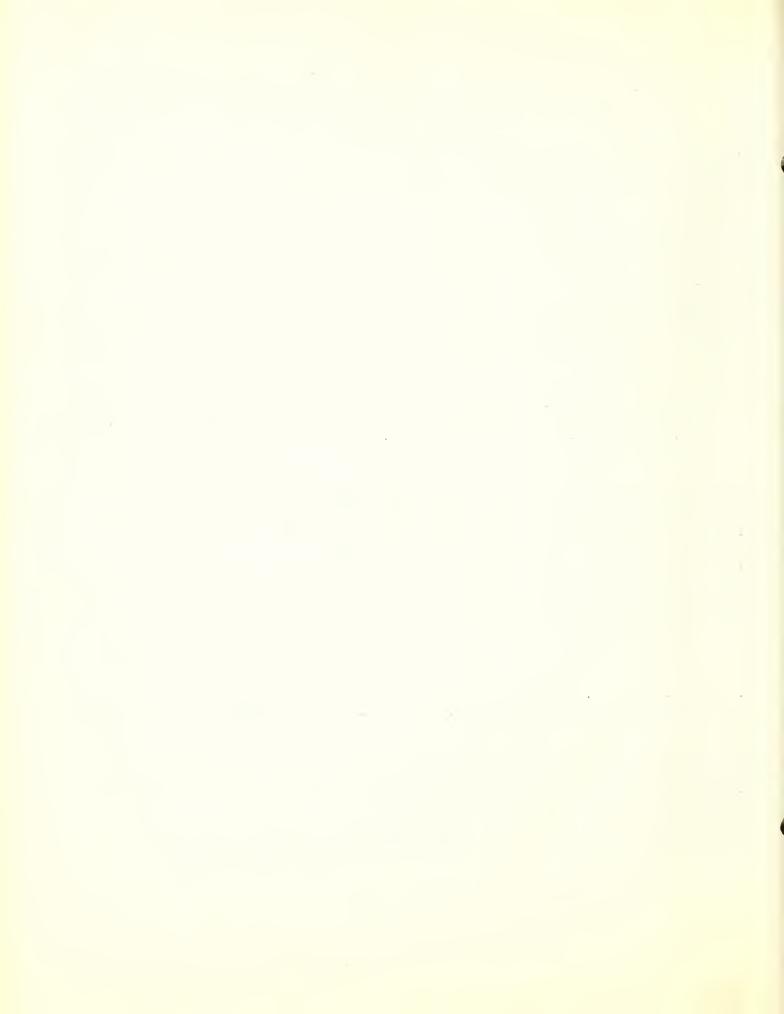16. To seize and take a person to jail because of misconduct or a crime   ____
17. To grab or seize a purse suddenly and steal it away from its owner   ____
18. To seize and hold (by the police) a car which was parked incorrectly   ____
19. To kidnap a child or an important person and carry him off secretly   ____
20. To defeat and take control of a country by force of arms   ____
21. To agree to take and pay for a magazine for a given length of time   ____

III. MOVE A. actuate B. propel C. gallop D. plunge E. instigate F. scamper G. race
        H. mobilize I. swoop J. meander K. drift L. enslave M. oscillate N. trot
        O. stimulate P. flutter Q. incite R. rove S. wander T. saunter
        U. perambulate V. pounce

22. To move in a fast, springing gait by leaps and bounds like a horse   ____
23. To move in a quick, jogging pace like a horse or a dog   ____
24. To move in a quick, hurried way and run like a mouse   ____
25. To run swiftly, especially when competing with other runners in a contest   ____
26. To move suddenly and swiftly down upon prey as hawks do to pick up chickens   ____
27. To move suddenly and jump or spring upon prey as cougars do upon cattle   ____
28. To move back and forth or to fluctuate between opposing beliefs   ____
29. To move by flapping the wings as a butterfly does in going from flower to flower   ____
30. To pitch or throw one's self forward as in jumping or diving into deep water   ____
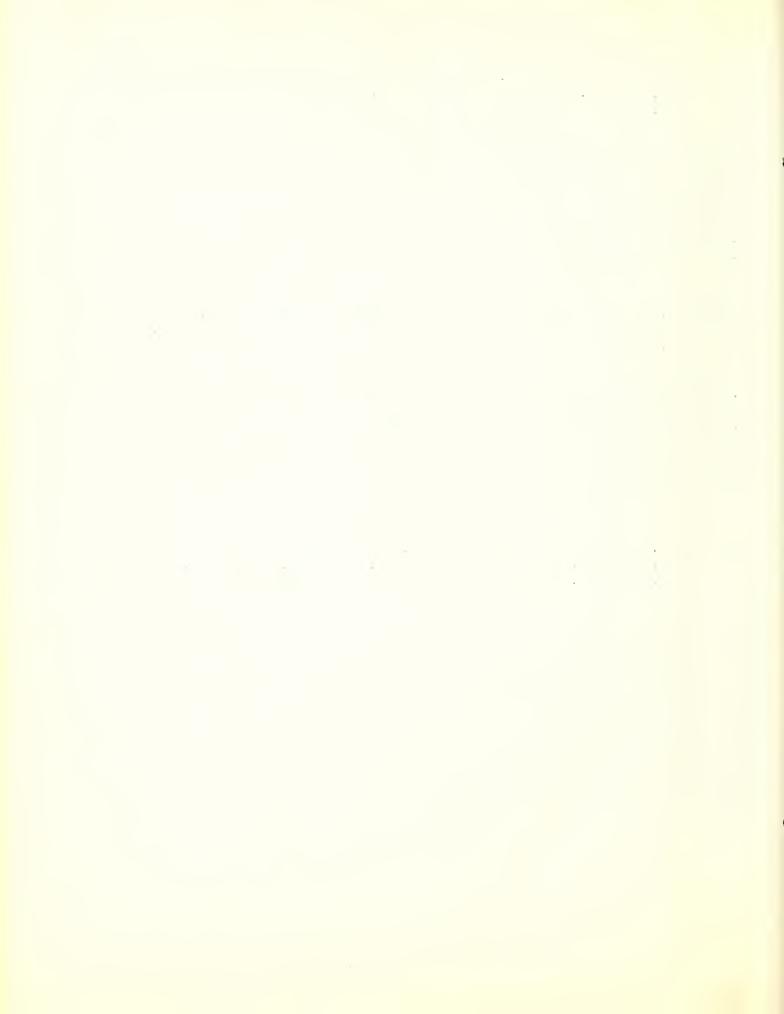31. To float or be carried along as if by a current of water or air   ____

IV. DESTROY A. dissipate B. suppress C. demolish D. annihilate E. vitiate F. wreck
G. dismantle H. efface I. raze J. overwhelm K. smash L. abolish
M. exterminate N. scuttle O. extinguish P. engulf Q. fell R. devastate
S. devour T. extirpate U. topple

32. To destroy the unity and organization of a defeated army and reduce it to nothing ____
33. To ruin or damage something by violence as a collision of two cars does ____
34. To put an end to something like a law, an institution or a custom ____
35. To ruin the mass or structure of something by tearing it apart and breaking into
pieces ____
36. To strip something like a ship or locomotive of furniture and equipment ____
37. To destroy a building by tearing it down level with the ground ____
38. To break or crush something into small pieces or shatter it like an egg or window ____
39. To destroy and eradicate mice, rats and other rodents ____
40. To quench and put out a fire or a light ____
41. To open holes in the deck and sides of a ship in order to sink and destroy it ____
42. To put down or crush a revolt by authority, force or pressure ____
43. To squander one's energy and money foolishly in search of pleasure ____

V. AID A. accommodate B. espouse C. patronize D. expedite E. nourish F. rescue
G. assist H. lend I. attend J. contribute K. furnish L. relieve M. entertain
N. advocate O. recruit P. regale Q. gratify R. countenance S. bolster T. serve
U. abet V. pander W. prop

44. To help by cooperating with another person, especially to support a superior in rank ____
45. To give money or to supply food for a common cause for charity ____
46. To provide a house with chairs, beds and other things for comfort and convenience ____
47. To allow a friend to use a tool on condition that it will be returned ____
48. To help a person by freeing him from worry or pain ____
49. To save, deliver or liberate a person from danger or injury ____
50. To provide recreation and amusement for guests ____
51. To favor a person by giving or doing something he particularly desires ____
52. To speed up a process like delivery of an important document ____
53. To help a store by trading there and supporting the policy of its owners ____

VI. ADD A. imply B. exaggerate C. correspond D. total E. insert F. interpolate
G. supplement H. amplify I. prefix J. inflate K. fortify L. reinforce
M. multiply N. annex

54. To add or introduce a word in a sentence or a paragraph between other words ____
55. To join one thing to another, especially in adding conquered territory to a nation ____
56. To add something at the end of a book or paper previously organized ____
57. To strengthen something by adding extra thickness ____
58. To add a syllable at the beginning of a word ____
59. To increase, enlarge and expand, especially sound through a loudspeaker ____
60. To add the numbers in a column to find an amount ____

VII. COOK A. stew B. cauterize C. chafe D. bake E. scald F. roast G. subsist
H. scorch I. broil J. cremate K. frizzle L. barbecue M. melt N. flux
O. fricassee P. mull Q. warm

61. To cook a large piece of meat, or other food in an oven
62. To cook bread and pastry in an oven
63. Without grease, to cook meat or fish rapidly in order to seal juices on the inside
64. To cook the entire carcass of a pig or chicken before an open flame
65. To burn meat or potatoes slightly while boiling them over a fire
66. To heat milk or soups just to the boiling point
67. To boil meat, onions, potatoes or other vegetables together to make a meal
68. To cut chicken or veal meat into small pieces and boil in a gravy

VIII. DECREASE A. attenuate B. curtail C. ebb D. ease E. abbreviate F. amputate
G. prune H. lower I. shrink J. abridge K. dwindle L. discount
M. depreciate N. wane O. decline P. abate Q. languish R. retrench
S. decimate T. detract U. meliorate V. skive W. minimize X. dwarf
Y. wear Z. mitigate

69. To shorten words like names of states by leaving out letters and using periods
70. In surgery, to cut off a leg or finger or arm of a person
71. To cut out dead branches from trees or shrubs in the spring
72. To shorten and condense a story or a dictionary
73. To grow dim or diminish gradually as the moon does after being full
74. To contract and become less in size as some cloth does when wet
75. To fail and draw to a close as the career of a great man appears to do
76. To become smaller and smaller in amount or size as a pile of sand will do
77. To decrease in value as an automobile does with age and hard service
78. To reduce or lessen a bill by a certain per cent if paid before a set date
79. To diminish and become less violent as a bad storm does near its finish
80. To cut down and reduce or diminish production in a factory

IX. COMBINE A. link B. league C. fraternize D. impregnate E. alloy F. absorb
G. amalgamate H. consolidate I. embody J. federate K. incorporate L. cement
M. fuse N. couple O. interlard P. agglutinate Q. link R. imbue

81. To mix and make a union of at least two different things like mercury and silver
82. To reduce the purity of gold by mixing it with a less valuable metal
83. To unite or combine into one company as two steamship companies might do
84. To join as members of a business or commercial firm recognized by law
85. To blend or unite two or more things as if they were melted together
86. To take or suck up another substance as a blotter does water or ink
87. To glue, paste or fasten two things together so that they adhere closely
88. To join a lodge or other social organization for common fellowship

X. PURIFY   A. lave   B. scrub   C. filter   D. fumigate   E. baptize   F. purge   G. pasteurize
            H. weed   I. shampoo   J. sterilize   K. ventilate   L. winnow   M. expurgate
            N. refine   O. launder

89. To free a doctor's instruments of all living germs or microbes   _____
90. To heat milk to a certain temperature in order to kill most harmful germs   _____
91. To use gases, smoke or vapors to free a room of insects or germs   _____
92. To wash and treat the hair and scalp   _____
93. To cause fresh air to circulate through a room   _____
94. To wash clothes with soap and water in order to clean them   _____
95. To clean a floor by using a stiff brush and water with strong soap   _____
96. To cleanse and purify a person in religious rites at a church service _____

XI. OPEN   A. spear   B. initiate   C. transfix   D. split   E. expose   F. lance   G. array
           H. perforate   I. puncture   J. standardize   K. yawn   L. impale   M. reveal   N. pink
           O. inaugurate

97. To cleave or divide a log or rail lengthwise with the grain   _____
98. To make holes in paper, cloth or wood by boring, piercing or punching _____
99. To make a hole in a tire by piercing with a sharp tack or piece of glass
100. To introduce and admit a person into a lodge with an impressive ceremony
101. To make known and exhibit a treasure that had been concealed
102. To bring to light and disclose the faults or crimes of a government official   _____
103. To introduce and induct a governor into his office with a formal ceremony   _____
104. To pierce and cut open a boil or vein   _____

XII. PASS   A. happen   B. flow   C. depart   D. enact   E. vanish   F. elapse   G. proceed
            H. cross   I. circulate   J. ratify   K. stream   L. surpass   M. permeate   N. beguile
            O. voice   P. relinquish   Q. traverse   R. intersect   S. decree   T. betide   U. vow
            V. consign

105. To quit or leave or go forth from a place
106. To slip or pass away as time does   _____
107. To disappear suddenly and completely from sight   _____
108. To advance or continue on a trip, especially if one has been interrupted   _____
109. To pass, or make a bill into a law as Congress does   _____
110. To approve and confirm a treaty, contract, appointment, or constitution   _____
111. To be better, greater, stronger than another person   _____
112. To befall or take place as any event come to pass or occurs   _____
113. To pass through and pervade a loose substance as water does in sand   _____
114. To pass or move around a course and return as blood does in the body _____
115. To cut across and divide by passing through, as streets and roads do _____
116. To move across or over a country or state in travelling   _____

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Name...................................Sex......Age......Date of Birth.............................

School...........................Year in School........Year in English......................

Average Grade in English or Literature and Reading........Time to take test...............

How well do you read? Fair........Good........Excellent........

VOCABULARY TEST--ADJECTIVES (Recognition)

This is a test to find out how well you choose the best word to describe a person or thing.

Read each phrase. In the lettered words at the top of each section, find the best word to describe or point out the person or thing referred to in a phrase. Try to select the word which carries the most exact meaning. Write the letter indicating your word in the blank space following a phrase.

Study the following sample and be sure you understand what to do. Each item is correctly marked according to Webster's International and Synonym dictionaries.

I. YELLOW A. jealous B. ecru C. cream D. buff E. amber F. lemon G. tawny H. citrine
          I. gilded J. primrose K. flaxen L. cowardly M. hysterical N. sallow

1. A person said to have a yellow streak down his backbone   L
2. A picture frame covered with a coat of gold-colored paint   I
3. The pale, yellowish skin of a sickly person   N
4. Fair, flowing, golden blond hair   K
5. Yellowish-brown or fawn-colored hair and beard   G

Every phrase has an exact word among the lettered words of a section. A lettered word can be used correctly for only one phrase of a section.

Work as fast as you can. Do first the exercises that are easy for you. If you can recognize a lettered word and remember any meaning for it, give yourself time to think about where to use it for a phrase.

Avoid wild guessing when you have no idea of the meaning of a word.

If you wish to change an answer, cross it out completely and write a second answer. Be sure your letters can be read easily. Write small letters if you prefer but be sure they are clear and distinct.

Are there any questions?

Wait for your teacher to tell you when to start the test.

I. VISIBLE A. macroscopic B. palpable C. patent D. apparent E. salient F. obvious
   G. conspicuous H. mobile I. visual J. ocular K. distinct L. glaring
   M. discernible N. definite O. ostensible P. avowed Q. notorious
   R. indisputable S. conclusive T. literal

1. A hat or necktie that is noticeable because of size, shape or bright color
2. A fact or object that is plainly seen by the eye or readily understood
3. A prominent and important or significant fact, detail or feature of a situation
4. Something so evident that it attracts attention enough to be readily observed
5. Something that is evident to the senses as well as the mind
6. A very bad error or mistake that stands out boldly
7. A picture with objects that are clear and plain

II. GREEN A. olive B. verdant C. emerald D. raw E. leaf F. callow G. chlorine
   H. tender I. bottle J. recent K. gullible L. neoteric M. virgin
   N. unskilled O. crude P. fallow

8. A very young or new and untrained worker
9. The brilliant green color of a precious stone
10. A trusting person who is readily deceived or imposed upon
11. Vegetables or other foods which are not cooked
12. Naive people, unsophisticated in spite of their age and experience
13. The greenish-yellow color of a small oval-shaped fruit or the name of a tree
14. Delicate, weak young plants like very small lettuce with very tiny leaves
15. Events taking place within the last few weeks or days

III. HARD A. adamantine B. stubborn C. complex D. stony E. inflexible F. stiff
   G. seasoned H. taut I. solid J. fatiguing K. energetic L. austere
   M. distilled N. grim O. depraved

16. The ice in a bucket where the water has completely frozen
17. Candy like taffy or caramel which has hardened too much to be pulled or worked
18. A metal band or bar that cannot be bent or twisted
19. Soldiers experienced in hard fighting at the front lines of battle
20. A problem that requires deep study and expert knowledge for its solution
21. A person whose mind is difficult if not impossible to change

IV. IMAGINATIVE A. abstract B. fertile C. fictitious D. quixotic E. whimsical
   F. extravagant G. chimerical H. preposterous I. artistic J. lyrical
   K. visionary L. poetic M. original N. idealistic O. mythical

22. A poem or story that is new, fresh and novel
23. Extremely fanciful plans formulated in dreams but almost impossible to realize
24. An invented or imaginary tale originally associated with religious rites
25. Schemes that are absurd, nonsensical and contrary to reason or nature
26. A story or narrative that is not real or genuine
27. A story or poem with quaint humor
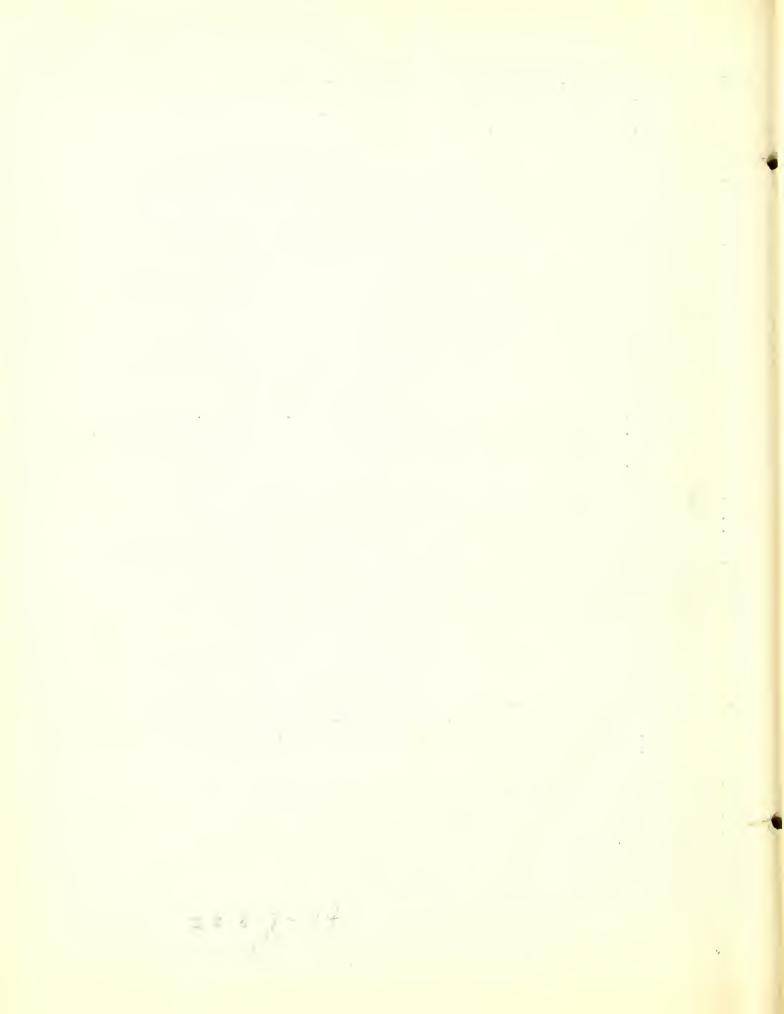28. Actions or deeds that are wild, excessive and unrestrained

V. OLD A. elder B. primeval C. prehistoric D. venerable E. obsolete F. medieval
        G. extinct H. ancient I. traditional J. drab K. stale L. classic M. aboriginal
        N. stagnant O. inveterate P. senile Q. effete R. superannuated

29. A man who is a persistent smoker from long, continuous practice   _____
30. Something that existed or happened long, long, long ago   _____
31. A law or custom handed down from generation to generation   _____
32. Something that existed or occurred before any written records were kept   _____
33. Something that existed or happened during the Middle Ages   _____
34. An old man who deserves great honor and respect   _____
35. Old bread or cake that has lost its flavor   _____
36. The foul, still water in a pond without an inlet or outlet   _____

VI. POOR A. barren B. faded C. unlucky D. humble E. incompetent F. disturbed
          G. emaciated H. encumbered I. sterile J. destitute K. flimsy L. insolvent
          M. feeble N. fallible O. small P. despicable Q. irrelevant R. exhausted

37. A person who lacks the ability, strength or training to do a job well   _____
38. Very old or well worn clothes that lack freshness and brightness of color   _____
39. A person who is very simple and modest   _____
40. Very poor land with little or no plant life or vegetation   _____
41. A business or a person who is unable to pay honest debts   _____
42. A needy person who lacks both property and means of making a living   _____
43. A gaunt and haggard person who is wasted by disease or worry   _____
44. Unnecessary information which does not apply directly to a case or problem   _____

VII. VARIEGATED A. barred B. freckled C. brindled D. dappled E. piebald F. checkered
                 G. mottled H. flecked I. clouded J. diversified K. irridescent
                 L. kaleidoscopic M. speckled N. striped O. plaid P. motley Q. striate
                 R. mosaic

45. Horses or fawns marked with small grayish-colored spots   _____
46. A person's face covered with small brown spots, brought out by the sun   _____
47. Horses marked with spots and patches of black and white as well as other colors   _____
48. A trout or other fish marked with spots of different colors   _____
49. Wood or glass with blotches of many different colors   _____
50. Farming by which a number of different crops are raised during the year   _____
51. A grayish or brownish-colored dog or cow with darker streaks and spots   _____
52. Glass or soap bubbles with changing shades of color in the light   _____

VIII. SAFE A. preservative B. seaworthy C. innocuous D. fireproof E. prudent
            F. unmolested G. impregnable H. sound I. tenable J. unscathed K. dependable
            L. innocent M. whole

53. A reliable person who proves trustworthy time after time   _____
54. A fort or fortress that cannot be taken or captured by an ordinary attack   _____
55. A wise and judicious person in practical affairs   _____
56. A simple, harmless, unoffending person who hardly ever accomplishes very much   _____
57. A position or viewpoint that can be maintained and defended without embarrassment   _____

IX. HEAVY A. depressed B. dense C. unwieldy D. severe E. coarse F. soggy G. onerous
H. massive I. powerful J. murky K. serious L. extreme M. momentous
N. stormy O. oppressive P. profound Q. intense R. turgid S. laborious
T. abundant U. clumsy V. drowsy

58. A very large, heavy, solidly built church or similar edifice ____
59. Bread or cake that is heavy because it did not rise, or was half-baked ____
60. A tired, sleepy person with heavy eyelids ____
61. A tragic and disappointing part of a character in a play ____
62. A strong, loud but pleasing voice which can be heard easily ____
63. An awkward person who is heavy on his feet ____
64. Cloth woven of heavy, rough yarns or thread ____
65. A forest or grove with a heavy stand of trees and some underbrush ____
66. A person who is heavy-hearted and discouraged ____
67. The supply of food or clothes which have been furnished in great quantities ____

X. KIND A. friendly B. considerate C. indulgent D. lenient E. obliging F. benign
G. tolerant H. sincere I. gracious J. magnanimous K. humane L. charitable
M. beneficial N. fair

68. A person who is tender and sympathetic in his treatment of animals as well as people ____
69. A very patient person who endures injustice without seeking revenge ____
70. A warm sunny climate that is good or helpful for a person in poor health ____
71. A person who gives liberally to the poor and is slow to judge other people ____
72. A father who pampers his children and overlooks all their weaknesses ____
73. A person who strives to please other people by being extremely helpful ____
74. A person who is free from prejudice and liberal about various beliefs ____

XI. CUNNING A. ingenious B. insidious C. subtle D. furtive E. evasive F. diplomatic
G. canny H. designing I. deceitful J. stealthy K. shifty L. astute
M. wily N. acute

75. A foxy person who plans and plots events usually for selfish purposes ____
76. A shrewd, very tactful person who manages to get along well with other people ____
77. A clever, capable person who can work without attracting attention to himself ____
78. An insincere, tricky person who deliberately plans to mislead other people ____
79. An artful, crafty person who is a shrewd observer of practical affairs ____
80. A sly, treacherous person who plots to ensnare and entrap other people ____

XII. ACTIVE A. nimble B. alert C. officious D. vivacious E. frisky F. spry G. prompt
H. quick I. aggressive J. persevering K. fast L. diligent M. strenuous
N. dynamic

81. A woman who is quick-witted, light-hearted and spirited ____
82. A person who assumes much authority and forces his services upon people ____
83. A young, playful, romping puppy that runs and capers ____
84. A confident, forceful and persistent salesman who goes out to get business ____
85. An extremely capable and very forceful person who influences many people ____
86. A person who works doggedly to complete a job he has begun ____

XIII. MILD A. meek B. conciliatory C. insipid D. compassionate E. tame F. amenable
G. bland H. easy I. placid J. emolient K. suave L. genial M. temperate
N. merciful O. melodious P. affable Q. subdued R. pusillanimous
S. dispassionate T. mellow U. balmy

87. The climate in territory between the Arctic Circle and Mexico _____
88. A person who is easily moved by the suffering and hardships of others _____
89. A pleasant and cheerful or jovial person, pictured as a successful host _____
90. A patient, modest and extremely gentle person _____
91. A diet of soft, smooth and soothing foods _____
92. A mild, refreshing spring day, heavy with the scent of many flowers _____
93. A salve or cream that softens and soothes the skin _____
94. A very tractable employee who submits readily to the authority of superiors _____
95. Mild food or drinks which are so tasteless that they fail to satisfy the appetite _____
96. A well-ripened apple with soft pulp and sweet flavor _____
97. The quiet, peaceful, undisturbed water of a lake on a calm day _____
98. A soft-spoken and affable person with urbanely persuasive manners _____

XIV. HEATED A. feverish B. incandescent C. fervent D. ardent E. tropical F. igneous
G. furious H. smoldering I. sensational J. tepid K. stifling L. thermal
M. inflamed N. keen O. impetuous P. provocative Q. stimulating R. irritable
S. boisterous T. rabid

99. The climate of countries lying on the equator _____
100. An appealing speech that shows deep and sincere feeling _____
101. A fire that burns and smokes without a flame _____
102. The heat on a damp and hot or sultry day when people breathe with difficulty _____
103. Water that feels lukewarm to one's hand _____
104. A devoted supporter of a political party who shows intense feeling for a cause _____
105. A wound or an eye that becomes irritated and infected _____
106. A rashly energetic person who dashes eagerly and headlong into action _____
107. An impatient person who is easily exasperated and vexed or angered _____

XV. ROUGH A. preliminary B. velvety C. inclement D. blunt E. riotous F. astringent
G. hoarse H. vehement I. turbulent J. formless K. corrugated L. drastic
M. unkempt N. discourteous O. approximate P. unscrupulous Q. discordant
R. uneven

108. The wild living of a group of gay and unrestrained people _____
109. The harsh, grating voice of a person with a cold _____
110. Rough, stormy, exceedingly unpleasant and unmerciful weather _____
111. An estimated answer that approaches the correct sum or total number _____
112. Packing paper folded so that it has alternate ridges and grooves _____
113. The troubled waters when a heavy storm whips an ocean or a lake _____
114. Rough ground that is difficult to walk across _____
115. A man with tousled hair, shaggy beard and baggy clothes _____